

**Adda247**

**GOVERNMENT OF ANDHRA PRADESH**

**DEPARTMENT OF SCHOOL EDUCATION**

**State Council of Educational  
Research and Training**

**SPL DSC-2022**

**SYLLABUS**

**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC -2022**

**SGT – SECOND GRADE TEACHER SYLLABUS**

**TET cum TRT for Second Grade Teachers(SGT)**

- i) The TET cum TRT (SGT) shall be conducted for 100 marks with 200 questions. Each question contains ½mark.
- ii) Duration of the examination shall be 3.00 hours.

**The areas to be tested for the post of SGT:**

- General Knowledge and Current affairs.
- Language – I Optional - (Telugu/Kannada/Urdu/Odiya)
- Language – II Compulsory (English)
- Mathematics
- Environmental Science- General Science
- Social Studies.
- The content for the above subject areas is from present class III to VIII syllabus of A.P Government Text Books. (Difficulty Level Up to Class – X) 2021-22 textbooks
- The Perspectives in Education, Educational Psychology (CDP), Methodology is from D.Ed / D.El.Ed syllabus - 2010-2018 (Telugu Academy Text Books/ School Education SCERT State syllabus Textbooks).

**Structure and Syllabus for SGT (TET Cum TRT):**

Division	Subjects	No. of questions	Marks	Syllabus
Part - I	<b>G.K. &amp; Current affairs</b>	20	10	Standard G.K and Events happened in the year 2022.
Part - II	<b>Perspectives in Education</b>	10	5	2010-2018 D.Ed/ D.El.Ed of Telugu Academy Text Books/ / School education SCERT Textbooks). NCF-2005, RTE, NEP-2020
Part - III	<b>Child Development and Pedagogy- Educational Psychology</b>	20	10	2010-2018D.Ed/ D.El.Ed of Telugu Academy Text Books/ School Education SCERT Textbooks).
Part – IV	<b>Language – I (Optional)</b> Telugu/Urdu/ Kannada/ Oriya-Content	20	10	III - VIII Class Present A.P State Government text books. (Difficulty Level Upto Class X)
	<b>Language – I (Optional)</b> Telugu/Urdu/ Kannada/ Oriya - Methodology	10	5	2010-2018 D.Ed/ D.El.Ed of Telugu Academy Text Books/ School Education SCERT Textbooks).
Part – V	<b>Language – II - English</b> Content	20	10	III - VIII Class Present A.P State Government Text books (Difficulty Level Upto Class X)
	<b>Language – II - English -</b> Methodology	10	5	2010-2018D.Ed/ D.El.Ed of Telugu Academy Text Books/ School Education SCERT Textbooks).

Part – VI	<b>Mathematics</b> - Content	20	10	III - VIII Class Present A.P State Government Text books (Difficulty Level Upto Class X)
	<b>Mathematics</b> - Methodology	10	5	2010-2018 D.Ed/ D.El.Ed of Telugu Academy Text Books / School Education SCERT Textbooks).
Part – VII	<b>Science</b> - Content	20	10	III - VIII Class Present A.P State Government Text books (Difficulty Level Upto Class X)
	<b>Science</b> - Methodology	10	5	2010-2018D.Ed/ D.El.Ed of Telugu Academy Text Books/ School Education SCERT Textbooks).
Part – VIII	<b>Social Studies</b> - Content	20	10	III - VIII Class Present A.P State Government Text books (Difficulty Level Upto Class X)
	<b>Social Studies</b> - Methodology	10	5	2010-2018 D.Ed/ D.El.Ed of Telugu Academy Text Books/ School Education SCERT Textbooks).
<b>Total Marks</b>		<b>200</b>	<b>100</b>	

- Note:**
1. If any ambiguity on the content it is suggested to refer NCERT Text Books also.
  2. Candidates are informed to follow academic year 2022-23 present State syllabus Textbooks for classes III to VII and 2021-22 academic year Textbooks for Class VIII.

## SGT Syllabus

1. G.K& current Affairs -	-	10M
2. Perspectives in Education	-	05M
3. Educational Psychology	-	10M
4. Content& Methodologies	-	75M (50+25)
Total	-	100 M

### PART - I

#### I. General Knowledge And Current Affairs (Marks: 10)

### PART - II

#### II. Perspectives In Education (Marks: 05)

##### 1. History of Education :

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

##### 2. Teacher Empowerment:

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

##### 3. Educational Concerns in Contemporary India:

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, SarvaSikshaAbhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), RashtriyaMadhyamikaSikshaAbhiyan(RMSA), RashtriyaAveshekarAbhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badipelusthondi, BadikiVasta, Mavuru – ManaBadi, Vidyanjali, SwachaPatasala, Inspire, Kalavutsav.

#### 4. Acts / Rights:

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

5. **National Curriculum** - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.

#### 6. National Educational Policy -2020

### PART - III

#### III. Educational Psychology – 10Marks

1. **Development of Child:** Development, Growth & Maturation – Concept & Nature. Principles of development and their education implication. Factors influencing Development – Biological, Psychological, Sociological, emotional. Dimensions of Development and their interrelationship – Physical & Motor, Cognitive, Emotional, Social, Moral, Language relating to Infancy, early Childhood, late Child hood, Adolescence. Understanding Development – Piaget, Kohlberg, Chomsky, Carl Rogers, Erikson.
2. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
3. **Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation – Children with special need – Inclusive Education.
4. **Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

### PART - IV

#### Telugu: - Content (Class III To VIII – Difficulty level upto Class X): 10మార్కులు

1) తెలుగు వాచకాలలో పాఠ్యభాగ విషయాలు

- A) కవి పరిచయాలు
- B) పాత్రలు
- C) ఇతి వృత్తాలు
- D) సందర్భాలు
- E) నేపథ్యాలు
- F) విద్యా ప్రమాణాలు

2) పదజాలం:-

- A) అర్థాలు
- B) పర్యాయపదాలు
- C) నానార్థాలు

- D) వ్యుత్పత్త్యర్థాలు
- E) జాతీయాలు
- F) సామెతలు - వివరణ, గుర్తించడం.
- G) పొడుపు కథలు

**3) భాషాంశాలు:**

- A) విభక్తి ప్రత్యయాలు
- B) ఔపవిభక్తికాలు
- C) పారిభాషిక పదాలు - (ద్రుత ప్రకృతికాలు, కళలు, ఆమ్రేడితం, సంధి, వచనాలు, కాలాలు, లింగాలు, సమాసం, ఆగమం, ఆదేశం, బహుళం)
- D) సంధులు - తెలుగు సంధులు- (అత్వ, ఇత్వ, ఉత్వ, యడాగమ, సరళాదేశ, ఆమ్రేడిత, ద్విరుక్తటకార, గసడదవాదేశ సంధులు.)  
సంస్కృత సంధులు- (సవర్ణదీర్ఘ గుణ, యణాదేశ, వృద్ధి సంధులు.)
- E) సమాసాలు - (ద్వంద్వ, ద్విగు, తత్పురుష సమాసాలు)
- F) ఛందస్సు - గణవిభజన, గణాల గుర్తింపు
- G) అలంకారాలు -  
వృత్త్యనుప్రాస, ఛేకానుప్రాస, అంత్యానుప్రాస (శబ్దాలంకారాలు) ఉపమా, ఉత్పేక్ష, అతిశయోక్తి (అర్థాలంకారాలు). అలంకారాలు గుర్తించుట, లక్ష్య లక్షణ సమన్వయం చేయుట.
- H) వాక్యాలు- (ఆశ్చర్యార్థక, విద్యర్థక, నిషేధార్థక, అనుమత్యర్థక, సామర్థ్యార్థక, సందేహార్థక, ఆశీర్వాదార్థక, ప్రార్థనార్థక, ప్రశ్నార్థక, హేత్వర్థక, కర్తరి, కర్మణి వాక్యాలు)

**తెలుగు బోధనా పద్ధతులు: 5 మార్కులు**

ప్రాథమికస్థాయిలో భాషాభివృద్ధి మరియు అవగాహన

- 1) తెలుగు భాషా బోధన, ఉద్దేశాలు, విలువలు, లక్ష్యాలు, స్పష్టికరణలు.
- 2) భాష - సమాజం - సాహిత్య ప్రక్రియలు
- 3) మాతృభాష స్వభావం, నిర్మాణం, ప్రాధాన్యత, భాషోత్పత్తివాదాలు, ధ్వని, అర్థ విపరిణామాలు
- 4) పాఠ్యపుస్తకాలు - బోధన శాస్త్రంపై అవగాహన
- 5) భాషా సామర్థ్యాలు విద్యా ప్రమాణాలు
- 6) బోధనా పద్ధతులు - బోధనాభ్యసన ప్రక్రియల నిర్వహణ
- 7) ప్రణాళికా రచన
- 8) బోధనాభ్యసన సామాగ్రి
- 9) ఆంధ్రప్రదేశ్ లో భాషాభివృద్ధి కార్యక్రమాలు
- 10) భాష - మూల్యాంకనం

(OR)

Urdu (Class III To VIII – Difficulty level upto Class X):

Content: 10 Marks

- I
- جماعت سوم تا جماعت ہشتم تک درسی کتب کا نصاب شامل ہے۔
- A - شعراء و ادباء کا تعارف
- B - اسباق میں موجود مختلف کرداروں کا پس منظر موقع و محل کا جائزہ
- C - تعلیمی معیارات

II لفظیات

- A - معنی
- B - مترادفات
- C - ذو معنی
- D - سابقہ لاحقہ
- E - محاورے

III زبان شناسی : اردو زبان کے عناصر

- 1- کلمہ ، مستقل کلمہ
- 2- ضمیر اور اسکے اقسام
- 3- رموز و اوقاف
- 4- فعل حال کے اقسام
- 5- زمانے
- 6- حروف سبشی اور قمری
- 7- مفرد اور مرکب لفظ
- 8- مرکب توصیفی
- 9- متضاد
- 10- تفسیر -

**Methodology: 05 Marks**

تختانوی سطح پر زبان کی ترقی اور فہم

سال اول :-

- 1 - تختانوی سطح پر زبان کی استعدادوں کی ترویج
- 2 - درسی کتب - طریقہ تدریس کا فہم
- 3 - کمرہ جماعت کا منصوبہ - اکتساب زبان احساب

سال دوم :-

- 1 - زبان اور سماج
- 2 - زبانی استعدادوں کی ترقی کرنا
- 3 - زبانی وسائل اور اس کا استعمال
- 4 - زبان کی ترقی و ترویج کی کارکردگیاں
- 5 - اکتساب زبان - متوقع نتائج
- 6 - زبان - طریقہ تدریس کا انعقاد تختانوی سطح پر منصوبے
- 7 - زبان کی جانچ

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(OR)

**Kannada(Class III To VIII – Difficulty level upto Class X):**

**Content: 10 Marks**

- 3 ರಿಂದ 8 ನೇ ತರಗತಿಗಳ ಕನ್ನಡ ಪಠ್ಯಪುಸ್ತಕಗಳು, ಪೂರಕ ಪಾಠಗಳಲ್ಲಿನ ವಿಷಯಗಳು :  
ಕವಿ - ಕಾವ್ಯಗಳು, ಲೇಖಕರು - ಕೃತಿಗಳು ಮತ್ತು ನಾಟಕಗಳ ಪರಿಚಯ, ಪಾಠದ ವಿವರಣೆ, ಹಿನ್ನೆಲೆ, ಪಾತ್ರಗಳ ಪರಿಚಯ, ಸಂದರ್ಭಗಳು, ಸನ್ನಿವೇಶಗಳು.
- ಪದ ಸಂಪತ್ತು - ಅರ್ಥಗಳು, ನಾನಾರ್ಥಗಳು, ಸಮನಾರ್ಥಕ ಪದಗಳು, ವ್ಯುತ್ಪತ್ತಿ ಅರ್ಥಗಳು, ನುಡಿಗಟ್ಟುಗಳು ಮತ್ತು ಲೋಕೋಕ್ತಿಗಳು - ವಿವರಣೆ, ಗುರ್ತಿಸುವುದು.
- **ಭಾಷಾಂಶಗಳು :**
  - 1) ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು
  - 2) ಪಾರಿಭಾಷಿಕ ಪದಗಳು
  - 3) ವಚನಗಳು, ಲಿಂಗಗಳು, ಕಾಲಗಳು, ಸಮಾಸಗಳು, ಒಗಟುಗಳು.
  - 4) ಸಂಧಿಗಳು - ಕನ್ನಡ ಮತ್ತು ಸಂಸ್ಕೃತ ಸಂಧಿಗಳು, ಲಕ್ಷಣಗಳನ್ನು ಗುರುತಿಸುವುದು.
  - 5) ಸಮಾಸಗಳು- ಸಮಾಸಗಳನ್ನು ಗುರ್ತಿಸುವುದು, ವಿಗ್ರಹವಾಕ್ಯ ಮಾಡುವುದು, ಲಕ್ಷಣಗಳನ್ನು ಸಮನ್ವಯಗೊಳಿಸುವುದು.
  - 6) ಛಂದಸ್ಸು - ಮಾತ್ರಾಗಣ, ಅಕ್ಷರಗಣಗಳ ಗುರ್ತಿಸುವಿಕೆ.
  - 7) ಅಲಂಕಾರಗಳು - ವ್ಯತ್ಯಾಸಪ್ರಾಸ, ಛೇದನಪ್ರಾಸ, ಅಂತ್ಯಪ್ರಾಸ (ಶಬ್ದಾಲಂಕಾರ) ಉಪಮೆ, ಉತ್ಪ್ರೇಕ್ಷ, ರೂಪಕ, ದೃಷ್ಟಾಂತ (ಅರ್ಥಾಲಂಕಾರ) ಅಲಂಕಾರಗಳನ್ನು ಗುರ್ತಿಸುವುದು, ಲಕ್ಷಣಗಳನ್ನು ಸಮನ್ವಯ ಗೊಳಿಸುವುದು.
  - 8) ವಾಕ್ಯಗಳು - ಭಾವಸೂಚಕ, ವಿದ್ವಾರ್ಥಕ, ನಿಷೇಧಾರ್ಥಕ, ಸಂಭವನಾತ್ಮಕ, ಪ್ರಶ್ನಾರ್ಥಕ, ನಕಾರಾತ್ಮಕ. ಕರ್ತರಿ, ಕರ್ಮಿಣಿ ವಾಕ್ಯಗಳು

**Methodology: 05 Marks**

**ಕನ್ನಡ ಭಾಷಾ ಬೋಧನಾ ಪದ್ಧತಿಗಳು ( 3 ಅಂಕಗಳು)**

- 1) ಕನ್ನಡ ಭಾಷಾ ಬೋಧನೆ ಮತ್ತು ಬೋಧಕ : ಬೋಧನೆಯ ಉದ್ದೇಶಗಳು ಮತ್ತು ಗುರಿಗಳು, ವಿಧಾನಗಳು
- 2) ಭಾಷಾ ಕೌಶಲ್ಯಗಳು : ವಾಚನ ಕೌಶಲ್ಯ - ಉದ್ದೇಶಗಳು, ಪ್ರಕಾರಗಳು, ಮಹತ್ವ, ಓದುಗಾರಿಕೆಯನ್ನು ವಿಧಾನಗಳು, ಗಮನಿಸಬೇಕಾದ ಅಂಶಗಳು, ಧ್ವನಿಗಳ ಉತ್ಪಾದನಾ ಕಾರ್ಯ.
- 3) ಲೇಖನ ಕೌಶಲ್ಯಗಳು : ಲೇಖನ ಕೌಶಲ್ಯ - ಉದ್ದೇಶಗಳು - ಕಲಿಸುವ ಕ್ರಮಗಳು - ಗಮನಿಸಬೇಕಾದ ಅಂಶಗಳು - ದೋಷಗಳ ನಿವಾರಣೋಪಾಯಗಳು.
- 4) ಮಾತುಗಾರಿಕೆ : ಉದ್ದೇಶಗಳು- ಉತ್ತಮ ಪಡಿಸುವ ಚಟುವಟಿಕೆಗಳು - ದೋಷಗಳು ಮತ್ತು ನಿವಾರಣೆ ಉಪಾಯಗಳು
- 5) ಬೋಧನಾ ಪದ್ಧತಿಗಳು : ಪದ್ಯ ಬೋಧನೆ ಮಹತ್ವ - ಬೋಧಿಸುವ ಕ್ರಮ -ಪದ್ಧತಿಗಳು , ಗದ್ಯ ಬೋಧನೆ - ಮಹತ್ವ - ಕ್ರಮ - ಪದ್ಧತಿಗಳು, ವ್ಯಾಕರಣ ಬೋಧನೆ - ಮಹತ್ವ - ಉದ್ದೇಶ - ಗುರಿಗಳು - ಪದ್ಧತಿಗಳು - ವಿಧಾನಗಳು
- 6) ಪಠ್ಯಕ್ರಮ ರಚನೆ : ತತ್ವಗಳು - ಗಮನಿಸಬೇಕಾದ ಅಂಶಗಳು - ರಾಷ್ಟ್ರೀಕರಣ - ವಾಚನಾಲಯ
- 7) ಬೋಧನಾ ಸಂಪನ್ಮೂಲಗಳು : ಬೋಧನೋಪಕರಣಗಳ ಮಹತ್ವ - ಪಾತ್ರ - ವರ್ಗೀಕರಣ - ಬೋಧನೋಪಕರಣಗಳನ್ನು ಬಳಸುವ ರೀತಿ .
- 8) ಮೌಲ್ಯಮಾಪನ : ಭಾಷಾಭಿವೃದ್ಧಿಯನ್ನು ಅಳೆಯಲು ವಿವಿಧ ಮೌಲ್ಯ ಮಾಪನ ಪರೀಕ್ಷೆಗಳು- ಮೌಲ್ಯಮಾಪನ ವಿಧಗಳು - ನೀಲ ನಕ್ಷೆ

(OR)

Odiya(Class III To VIII – Difficulty level upto Class X ):

Content: 10 Marks

1) ତୃତୀୟଶ୍ରେଣୀଠାରୁଅଷ୍ଟମଶ୍ରେଣୀପର୍ଯ୍ୟନ୍ତସାହିତ୍ୟପାଠ୍ୟବହି ଅନ୍ତର୍ଗତ :-

ବିଷୟବସ୍ତୁ,କବି/ଲେଖକପରିଚୟ, ବିଭିନ୍ନଚରିତ୍ର, ପୃଷ୍ଠଭୂମି, ପୂର୍ବାପରପ୍ରସଙ୍ଗ,  
ବୈଶିଷ୍ଟ୍ୟ, ବିଭିନ୍ନଶିକ୍ଷାମାନସହଅନୁୟ

2) ଶବ୍ଦଭଣ୍ଡାର :-

ପାଠ୍ୟାଂଶଭିତ୍ତିକଶବ୍ଦାର୍ଥ, ଭିନ୍ନାର୍ଥ, ମୌଳିକତଥାସ୍ପ୍ୟପୂର୍ଣ୍ଣଶବ୍ଦ, ଶବ୍ଦରଗଠନଧାରା ,  
ଲିଙ୍ଗ, ପୁରୁଷ, ବଚନ, ସାଧାରଣଅଶୁଦ୍ଧିଶବ୍ଦ,ପ୍ରତ୍ୟୟଶବ୍ଦ, ବିପରୀତାର୍ଥ, ଭିନ୍ନଜାତୀୟଶବ୍ଦ, ଏକପଦରେପ୍ରକାଶ

3) ଭାଷାପ୍ରକରଣ:-

ବିଶେଷ୍ୟ, ବିଶେଷଣ, ସର୍ବନାମ,କ୍ରିୟା,ଅବ୍ୟୟ,ସନ୍ଧି, ସମାସ, ଛନ୍ଦ, ଅଳଙ୍କାର,ବାକ୍ୟରପ୍ରକାରଭେଦ, ଆଦିର  
ସଂଜ୍ଞା, ସ୍ଵରୂପ, ଗଠନରୀତି ଓ ପ୍ରକାର ଭେଦ

Methodology: 05 Marks

1) ପ୍ରାଥମିକସ୍ତରରେମାତୃଭାଷାଶିକ୍ଷାଦାନରଗୁରୁତ୍ଵ , ଲକ୍ଷ୍ୟ ଓ ଉଦ୍ଦେଶ୍ୟ

2) ଭାଷାକୌଶଳ

3) ଶିକ୍ଷଣ କାର୍ଯ୍ୟଭିତ୍ତିକ ପାଠଯୋଜନା

4) ଶିକ୍ଷାଦାନପଦ୍ଧତି

5) ମୂଲ୍ୟାୟନ [CCE]

## PART - V

### **Language – II English (Marks: 10)(Class III To VIII – Difficulty level upto Class X ):**

1. Poets, Essayists, Novelists, Dramatists and their works
2. Forms of Language - Story, Essay, Letter writing, Editorial, Precis writing, note- making, autobiography and biography
3. Pronunciation - Sounds - Use of dictionary
4. Parts of Speech
5. Tenses
6. Types of Sentences
7. Articles and Prepositions

### **Methodology - English (Marks: 05)**

1. Aspects of English:- (a) English language - History, Nature, Importance, Principles of English as Second Language (b) Problems of Teaching / Learning English.
2. Objectives of Teaching English.
3. Phonetics
4. Development of Language skills:- (a) Listening, Speaking, Reading & Writing (LSRW) (b) Communicative skills.
5. Approaches, Methods, Techniques of teaching English: Introduction, Definition and Types of Approaches, Methods and Techniques of Teaching English, Remedial Teaching.
6. Teaching of Structures and Vocabulary items.
7. Teaching Learning Materials in English
8. Lesson Planning
9. Curriculum & Textbooks
10. Evaluation in English language

## PART - VI

### **Mathematics Content (10Marks)(Class III To VIII – Difficulty level upto Class X ):**

#### **I. Numbers :**

Numbers - four fundamental operations ( addition, subtraction, multiplication, division) -Knowing our Numbers & International system - Prime and composite numbers-Rounding of numbers - Whole Numbers-Playing with Numbers - Divisibility rules - Factors- Methods of prime factorization, Co-primes- twin primes- LCM-HCF- negative numbers- integers-Fractions-Decimals- Rational Numbers-Squares- Cubes- Square Roots and Cuberoots-Profit and Loss .

#### **II. Mensuration :**

Length -Weight -Capacity -Time -Money - Area and Perimeter of Triangle- Square-Rectangle-Rhombus-Circle- Trapezium- Parallelogram - The perimeter for square and rectangle through pattern - Surface area and volume of Cube and Cuboid

#### **III.Geometry :**

Naming of the given figures and Parts of 2D figures of Triangle, Square and Rectangle -Identification and counting of Edges- Corners- Faces (3D figures)-Introduction of Perimeter and Area of given shapes-Geometrical patterns (TANGRAM)-Introduction of circle- center, diameter and radius-Primary Geometry concepts (Point, straight line, line segments, ray)-Types of angles (Right, Obtuse & Acute angles)-Open & closed figures- Symmetry- line symmetry & rotation symmetry ( $1/2, 1/4$  )- Picture patterns- Area and Perimeter- Lines and Angles,-Triangle and its properties - Congruency of Triangles-Quadrilaterals- Practical Geometry- Construction of Triangles-Construction of Quadrilaterals- Exploring Geometrical Figures.

#### **IV. Data Handling:**

Reading and interpreting the Data (Bar graphs, picto graphs)- Analysis of the data with tally marks-Collection & organization of data -Representation of Data .

#### **V. Algebra:**

Patterns - making rules-Introduction of variables - Expressions with variables & Rules-Number forms of even and odd( $2n, 2n+1$ )- Introduction to unknowns- Simple equations - Algebraic expressions-Exponents & Powers- Linear Equations in one variable-Factorization.

#### **VI. Arithmetic:**

Comparing quantities using proportion -Concept and applications of Ratio-Proportion of equality ratios -Unitary method- Understanding ratios & Proportions - Direct and Inverse proportion

#### **Maths Methodology (05Marks)**

1. Nature and Definitions of Mathematics
2. Aims, values and instructional objectives of teaching Mathematics
3. Methods of Teaching & Remedial measures in Mathematics
4. Instructional Material, TLM and Resource Utilization in Mathematics
5. Curriculum, Text Book & Instructional Planning.
6. Evaluation and Continuous Comprehensive Evaluation

## PART - VII

**Science Content (Marks: 10)(Class III To VIII – Difficulty level upto Class X):**

### **1. Living World:**

Non Living and living Organisms - Plants and Animals- Classification of plants- Plant - Parts and Functions - Flower to seed- Seed Germination- Diversity in Plants- Life cycle of a plant- food for plants-Animals around us- Classification of animals- Group behavior of animals- Animals diversity (based on ecological conditions)-movements in animals- animal husbandry-Family - Changing family structure -family life -usage of home appliances- Methods of Agriculture - Traditional, Modern, Organic-Agriculture &Tools-economy- Agricultural operation - Cultivation of Crops- diseases to plants and control-improvement of crop yield storage- Preservation and protection of food and plant products-Hybridization

Climate change - drought, deforestation, ecosystem- Weather- Climate- Soil our life- rain- floods- Cyclones- disaster management- Air - Importance of air-composition of air- atmospheric pressure-diseases spread through air and their prevention-air pollution - causes, its impact and measures to prevent- Green House effect

Water - Forms of water -Water resources - Rivers, lakes, canals in A.P and India- How to save water-Need and Importance of water- methods of water conservation- Process of producing and procuring water -Water cycle - ways to keep water resources hygienic- Story of river Krishna- Major rivers in AP-Reasons behind river pollution and its adverse effects- drought and floods- Rain water harvesting - Shelter -Importance of shelter- the places of living in neighborhood- types of houses- Homeless people-Diversity of shelters depending on climate-Homes of Animals , Insects and Birds- Concern for animals and birds-Organisms and Habitat- Classification of living organisms- Story of microbial world-Useful and harmful micro organisms- Why do we fall ill?- Branches of Sciences- Recent trends in Science-Games and Recreation.

### **2. Life processes :**

Our Body - Body parts - Sense organs - functions - care & safety measures,-Human body systems,- Major organ systems- First Aid- Movement and Locomotion - Functions of muscles and bones-Different types of joints- Cartilage-tendon and ligament- Process of movements in animals- Locomotion in birds, snake, fish and snails- Nutrition in Plants- Cell, cell organelles- parts of plants and functions- Nutrition in plants and animals- excretion-respiration- control and coordination-reproduction- seed dispersal in plants- control and coordination in organisms- Our food-Foods available around us - Food from plants and animals- Need of food- Mid-Day Meal- Process of cooking food and preservation-Different food items- Food ingredients-Methods of preparing food- Tasty Food- Food habits- food components- Nutritious food-Health-Cleanliness- Balanced diet- Malnutrition- Food Pyramid- Junk food- Good Touch and Bad Touch

### **3. Natural Phenomena :**

Materials - classification of materials-separating methods - Magnets - Playing with magnets- Measurements -Different measuring instruments- Standard units of measurements- Precautions while measuring –Nature of substances- Fabrics -Different types of fabrics- Characteristics and uses- Changes around us- separation of substances -Plastics, metals and non metals- matter- Acids and bases- Motion and time- Energy- Forms of Energy - Energy resources- Renewable and non renewable resources-conservation of energy –Heat , Temperature-Temperature and its measurement- Electricity- Electric circuits- Current and its effects- Sound- reflection of light-Shadows- friction- force- speed- velocity- combustion-fuels and flame- How to measure things- Coal-Petrol- Petroleum products.

### **4. Transportation and Communication:**

Transportation -Objects- signs and signboards used for transport- Places associated with transport- Modes of travel in the present and in the past- Methods of transport in different topographical conditions- Need for an international transport -Import and export of the goods-different means of transport of goods-Importance of tourism and seven wonders of the world-How communication and transport brings the entire world together-Means and objects of Communication- Types of Communication both in Human and Animals ( different feelings and gestures) Modern forms of communication- Communication used in the past and present- Advantage of Mass Communication- Communication through Postcard, Cell Phone and Internet etc.,

### **5. Professions and Services:**

House hold materials with reference to profession (farmer, cobbler, tailor etc)-Different professions and their need to the society- villager/farmer (seeds/manure/ agri methods etc.), helping agents ( bank, e- seva, PHC, panchayat office, post office/etc.,)

### **6. Our Environment:**

Bio diversity- Diversity in plants and animals- let's plant- trees- endangered, endemic species- Forest-Tribes - Tribal life - diversity in forests-Soil and Water- Pollution , reasons, impact and solutions- Different Ecosystems- Ecology- Bio mass- Abiotic, Biotic factors- Global Environmental Issues-Global warming- Acid rains- depletion of Ozone layer- Stars and Solar systems- River- Lively hood- Atmosphere - wind - safety measures - Historical sites - Our Country-World, Our constitution, Child rights.

### **Methodology: (05 Marks)**

1. Nature, Scope, History and development of science.
2. Aims, Values, Objectives specifications of teaching Science, Academic Standards.
3. Methods, approaches and techniques of teaching science.
4. Teaching learning material, Improvised teaching aids.
5. Science curriculum, Text – book.
6. Assessment and Evaluation
7. Science laboratories.
8. Planning in science teaching ( Year Plan, Lesson Plan)
9. Role of Science Teacher
10. Science Fairs, Science clubs, Field – trips, Science museums.

## PART - VIII

### **Social Studies Content - 10 Marks (Class III To VIII – Difficulty level upto Class X):**

#### **Theme - I: Diversity on the Earth**

Learning through maps- Reading, Making and analysis of Maps – different kinds of maps. - Globe – A Model of the Earth-latitudes and Longitudes- Land Forms of Andhra -Rain and Rivers-Tanks and Ground Water – Oceans and Fishing – Continents – Europe – Africa – Energy from the Sun –The Universe and the Earth - Earth Movements and Seasons - The Polar Regions - Forests:Using and Protecting them - Minerals and Mining. Solar system –Sun, Moon, Stars Planets and eclipse .

#### **Theme - II: Production Exchange and Livelihoods**

From Gathering Food to Growing food – The Earliest People - Agriculture in Our Times - Trade in Agricultural Produce - Trade in Agricultural Produce - Handicrafts and Handlooms - Industrial Revolution - Production in a Factory - A Paper Mill - Importance of Transport System – Safety measures - Money and Banking - Impact of Technology on Livelihoods - Public Health and the Government

#### **Theme -III: Political Systems and Governance**

Emergence of Kingdoms and Republics - First Empires - Democratic Government - Village Panchayats - Local Self – Government in Urban Areas - New Kings and Kingdoms - The Kakatiyas - Emergence of a Regional Kingdom - The Kings of Vijayanagara - Delhi Sultanate- Mughal Empire - Establishment of British Empire in India - Landlords and Tenants under the British and the Nizam - National Movement - The Early Phase 1885-1919 - National Movement - The Last Phase 1919-1947 - Freedom Movement in Hyderabad State - The Indian Constitution - Parliament and Central Government - Making of Laws in the State Assembly - Implementation of Laws in the District - Law and Justice.

#### **Theme -IV: Social Organization and Inequities**

Diversity in Our Society - Towards Gender Equality -Caste Discrimination and the Struggle for Equalities - Livelihood and Struggles of Urban Workers - Abolition of Zamindari System - Understanding Poverty - Rights Approach to Development

#### **Theme - V: Religion and Society**

Religion and Society in Early Times - Devotion and Love towards God - Folk – Religion - Devotional Paths to the Divine - Social and Religious Reform Movements - Understanding Secularism

#### **Theme -VI: Culture and Communication**

Language, Writing and Great Books - Sculptures and Buildings - Rulers and Buildings - Performing Arts and Artistes in Modern Times - Film and Print Media - Sports: Nationalism and Commerce. Historical sites – Forts - Our Country – World, Our constitution, Child rights. Indian History and Culture.

#### **Methodology: (05 Marks)**

1. Nature, Scope, History and development of Social.
2. Aims, Values, Objectives specifications of teaching Social, Academic Standards.
3. Methods, approaches and techniques of teaching Social.
4. Teaching learning material, Improvised teaching aids.
5. Social curriculum, Text – book.
6. Assessment and Evaluation
7. Social laboratories.
8. Planning in Social teaching ( Year Plan, Lesson Plan)
9. Social Teacher roles and responsibilities.
10. Fairs, Clubs, Field – trips, museums

**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC-2022**  
**DSC - SCHOOL ASSISTANT SYLLABUS - ENGLISH**

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<b>1. G.K &amp; current Affairs -</b>	-	<b>10M</b>
<b>2. Perspectives in Education</b>	-	<b>05M</b>
<b>3. Classroom implications of Educational Psychology –</b>		<b>05M</b>
<b>4. English Content</b>	-	<b>40M</b>
<b>5. English Methodology</b>	-	<b>20M</b>
<b>Total</b>	-	<b>80 M</b>

**PART - I**

**I. General Knowledge And Current Affairs (Marks: 10)**

**PART - II**

**II. Perspectives In Education (Marks: 05)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education



- Value Education – Morel Value and Professional Eathics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), Rashtriya Aveshekar Abhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badi pelusthondi, Badi ki Vasta, Mavuru – Mana Badi, Vidyanjali, Swacha Patasala, Inspire, Kalavutsav.

#### **4. Acts / Rights:**

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

#### **5. National Curriculum - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.**

#### **6. National Education Policy -2020**

### **PART - III**

### **III. Classroom Implications of Educational Psychology – 05m**

- 1. Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
- 2. Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
- 3. Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

## PART - IV

### IV. Content (40 Marks) ( Class VI to Intermediate level syllabus )

VOCABULARY	LEVEL OF TESTING
<b>Synonyms</b>	Identification of Shades of Meaning
<b>Antonyms</b>	Identifying Antonyms in a Context
<b>Homophones</b>	Identification & Usage
<b>Homonyms</b>	Identification & Usage
<b>Hypernyms &amp; Hyponyms</b>	Identification & Usage
<b>Spelling</b>	Spelling
<b>One-word Substitutes</b>	Referring to Persons / Professions, Places, Collections
<b>Phrasal Verbs</b>	Identification of Meaning and usage
<b>Idiomatic Expressions</b>	Identification, Usage
<b>Proverbs</b>	Proverbs
<b>Word Formation</b>	Suffixes, Prefixes and other forms
<b>Short Forms - Full Forms</b>	Common Short Forms - Full Forms
<b>Abbreviations - Full Forms</b>	Common Abbreviations - Full Forms
<b>Word Collocations</b>	Word Collocations
<b>Foreign Phrases Used in English</b>	Standard and common Foreign Phrases Used in English
GRAMMAR	LEVEL OF TESTING
<b>Helping Verbs</b>	Form, Function & Contractions
<b>Modal Auxiliaries</b>	Form, Function & Contractions
<b>Ordinary Verbs</b>	Form, Function & Contractions
<b>Articles</b>	Use of Articles Including Omissions
<b>Prepositions</b>	Simple, Compound Prepositions Including Prepositions following Certain Words and Prepositional Phrases

<b>Clauses</b>	Main Clauses, sub-ordinate Clauses, Adjectival Clauses, Noun Clauses, Adverbial Clauses, Relative Clauses, Finite and Non-finite Clauses
<b>Sentence Structures</b>	Sentence Structures
<b>Degrees of Comparison</b>	Form, Function, Construction, Transformation
<b>Language Functions</b>	Language Functions with social norms (formal and informal)
<b>Question Tags</b>	Imperatives and Statements with semi negatives and indefinites subjects
<b>Types of Sentences</b>	Types of Sentences
<b>Sentence Improvement</b>	Sentence Improvement
<b>Direct Speech &amp; Indirect Speech</b>	Statements, Questions, Imperatives and Exclamatory Sentences
<b>Active Voice &amp; Passive Voice</b>	Active Voice & Passive Voice
<b>Tenses</b>	Use of tenses and framing including IF conditionals Type 1, 2 &3
<b>Agreement between subject &amp; Verb</b>	Agreement between subject & Verb
<b>Word Order</b>	Word Order In a phrase or a sentence
<b>Parts of Speech</b>	Nouns, Pronouns, Adjectives, Adverbs, Conjunctions, Interjections - Types and functions
<b>Linkers</b>	Linkers
<b>Transformation of Sentences</b>	Simple. Compound and Complex Sentences
<b>Common Errors</b>	Based on all Vocabulary and Grammar Topics
<b>MECHANICS OF WRITING</b>	<b>LEVEL OF TESTING</b>
<b>Punctuation and Capitalization</b>	Use of capital letters, comma, full stop, question mark, exclamation mark and inverted commas

<b>COMPOSITION</b>	<b>LEVEL OF TESTING</b>
<b>Writing of Discourses</b>	Letter Writing, News Report, Diary Entry, Conversation, Description, Diary Entry, Biographical Sketch, Story, Script for a speech
<b>DICTIONARY SKILLS</b>	<b>LEVEL OF TESTING</b>
<b>DICTIONARY SKILLS</b>	DICTIONARY SKILLS
<b>PRONUNCIATION</b>	<b>LEVEL OF TESTING</b>
<b>Phonetics, Stress &amp; Intonation</b>	Phonetic Transcription and stress marking including intonation in context
<b>READING COMPREHENSION</b>	<b>LEVEL OF TESTING</b>
<b>Prose</b>	Prose (GENERAL)
<b>LITERATURE</b>	<b>LEVEL OR AREA OF TESTING</b>
<b>Background of English Literature</b>	Poetical Types, Stanza forms, School and Movements, Dramatic Types, The Essay, The Novel, The Short Story
<b>Literary Terms</b>	*Parallelism, Prologue, epilogue, setting, the character, metre, diction, imagery, prosody, point of view, epic, mock epic, choreography, narration, classic, chorus, comedy, tragedy, conflict, plot, criticism, discourse, empathy, sympathy, style, theatre, feminism, soliloquy, folklore, structure; *Figures of Speech - Simile, Metaphor, Apostrophe, Personification, Metonymy, Synecdoche, irony and alliteration; *Rhyme Scheme

<b>Poetry Study (Detailed)</b>	<ol style="list-style-type: none"> <li>1. Where the Mind Is without Fear (Rabindranath Tagore)</li> <li>2. The cloud (P.B.Shelly)</li> <li>3. The Nation's Strength (R.W.Emerson)</li> <li>4. Palanquin Bearers (Sarojini Naidu)</li> <li>5. The Road Not Taken (Robert Frost)</li> <li>6. La Belle Dame Sans Merci (John Keats)</li> <li>7. Telephone Conversation (Wole Soyinka)</li> <li>8. The Night of the Scorpion (Nissim Ezekiel)</li> </ol>
<b>Prose / Essay (Detailed Study)</b>	<ol style="list-style-type: none"> <li>1. Of Truth (Francis Bacon)</li> <li>2. Self-reliance (R.W.Emerson)</li> <li>3. On Shaking Hands (A.G.Gardiner)</li> <li>4. Robots and People (Isaac Asimov)</li> </ol>
<b>Novels (Detailed Study)</b>	<ol style="list-style-type: none"> <li>1. Pride and Prejudice (Jane Austen)</li> <li>2. Swami and Friends (R.K.Narayan)</li> </ol>
<b>Drama (Detailed Study)</b>	<ol style="list-style-type: none"> <li>1. Macbeth (Shakespeare)</li> <li>2. Murder in the Cathedral (T.S.Eliot)</li> </ol>
<b>Short Story (Detailed Study)</b>	<ol style="list-style-type: none"> <li>1. The Gold Watch (Mulk Raj Anand )</li> <li>2. The Postmaster (Rabindranath Tagore)</li> <li>3. After Twenty Years (O' Henry)</li> <li>4. The Thief (Ruskin Bond)</li> </ol>

### **V. Methodology (20 Marks)**

1. Aspects of language (English Language History, Nature, Importance, Principles of English as Second language and problems of Teaching / learning English)
2. Objectives of Teaching English
3. Development of language Skills (Listening, Speaking, Reading and Writing; Communicative Skills and Imparting values through Communication)
4. Approaches, Methods and Techniques of Teaching English (Introduction, Definition, Types of Approaches, Methods and Techniques of Teaching including Remedial Teaching)
5. Teaching of Structures, Vocabulary and Grammar
6. Teaching Learning Materials in English
7. Lesson Planning
8. Curriculum and Textbooks - Importance and need
9. Evaluation in English Language
10. Pronunciation, Phonetics and Phonetic Transcription

**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC -2022**

**SCHOOL ASSISTANT SYLLABUS - TELUGU**

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1. G.K& current Affairs -	-	10M
2. Perspectives in Education	-	05M
3. Classroom implications of Educational Psychology –		05M
4. Content	-	40M
5. Methodology	-	20M
Total	-	80 M

**PART - I**

**I. General Knowledge And Current Affairs (Marks: 10)**

**PART - II**

**II. Perspectives In Education (Marks: 05)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, SarvaSikshaAbhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL),

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- Current Trends in Education – Badipelusthondi, BadikiVasta, Mavuru – ManaBadi, Vidyanjali, SwachaPatasala, Inspire, Kalavutsav.

**4. Acts / Rights:**

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
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**5. National Curriculum** - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.

**6. National Educational Policy-2020**

**PART - III**

**III. Classroom implications of Educational Psychology – 05Marks**

- 1. Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
- 2. Learning:**Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
- 3. Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

**PART – IV**

**IV. Content (40 Marks)( Class VI To Intermediate level syllabus )**

1) 6వ తరగతి నుండి ఇంటర్మీడియట్ వరకు గల ఆంధ్రప్రదేశ్ ప్రభుత్వ తెలుగు వాచకాలలోని అంశాలు:

(ఉపవాచకాలతో సహా)

40 మార్కులు

కవికాలాదులు, నేపథ్యాలు, ఉద్దేశాలు, మూల గ్రంథాలు, విశేషాంశాలు, ఇతివృత్తాలు, పాఠ్యాంశ విషయాలు మొ॥వి; విద్యాప్రమాణాలు.

2) పదజాలం:

అర్థాలు, పర్యాయపదాలు, నానార్థాలు, వ్యుత్పత్త్యర్థాలు, ప్రకృతి - వికృతులు, జాతీయాలు, సామెతలు మొ॥వి.

3) భాషాంశాలు:

సంధులు, సమాసాలు, ఛందస్సు, అలంకారాలు, పారిభాషికపదాలు క్రియలు, వాక్యాలు మొ॥వి.

4) తెలుగు సాహిత్య చరిత్ర:

5) తెలుగు భాషా చరిత్ర:

తెలుగులో అన్యదేశాలు; మాండలికాలు; అర్థవిపరిమాణం; ధ్వనుల మార్పు

6) సాహిత్య విమర్శ:

7) బాల వ్యాకరణం:

సంజ్ఞ, సంధి, తత్పమ, ఆచ్ఛిక, సమాస, పరిచ్ఛేదములు.

8) ఛందస్సు: (వృత్తాలు, జాతులు, ఉపజాతులు)

యతులు, ప్రాసల రకాలు - ఛందో దర్పణం

**V. తెలుగు బోధనా పద్ధతులు : 20 మార్కులు**

బి.ఎడ్ తెలుగు బోధనా పద్ధతులు. (తెలుగు అకాడమీ ప్రచురణ)

1. భాష - వివిధ భావనలు
2. భాషానైపుణ్యాలు
3. ప్రణాళిక రచన - పాఠ్యగ్రంథాలు
4. విద్యా సాంకేతిక శాస్త్రం - సహపాఠ్య కార్యక్రమాలు
5. సాహిత్య ప్రక్రియలు - బోధనా పద్ధతులు
6. మూల్యాంకనం - పరీక్షలు



**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC-2022**  
**DSC - SCHOOL ASSISTANT SYLLABUS - HINDI**

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1. G.K& current Affairs -	-	10M
2. Perspectives in Education	-	05M
3. Classroom implications of Educational Psychology –		05M
4. Content	-	40M
5. Methodology	-	20M
Total	-	80 M

**PART - I**

**I. General Knowledge And Current Affairs (Marks: 10)**

**PART - II**

**II. Perspectives In Education (Marks: 05)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
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### PART - III

#### **III. Classroom implications of Educational Psychology – 05Marks**

1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
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### PART - IV

#### **IV. CONTENT (Marks: 40)( Class VI to Intermediate level syllabus )**

1. **हिंदी साहित्य का इतिहास:** काल विभाजन - विभिन्न विद्वानों के विचार आदिकाल, भक्ति काल, रीति काल और आधुनिक काल
2. **आधुनिक साहित्य:** विभिन्न प्रवृत्तियाँ और प्रमुखवाद (छायावाद, प्रगतिवाद, प्रयोगवाद, रहस्यवाद आदि ) साहित्यक विधाएँ (कविता, कहानी, उपन्यास, नाटक आदि)
3. **हिंदी भाषा का इतिहास:** उद्भव और विकास: हिंदी राष्ट्र भाषा, राजभाषा और विश्व भाषा के रूप में हिंदी देवनागरी लिपि का विकास, देश की एकता और हिंदी।
4. **हिंदी भाषा का क्षेत्र:** उपभाषाएँ और बोलियाँ
5. **भारतीय काव्यशास्त्र:** अर्थ, परिभाषा, प्रयोजन और लक्षण, रस, छंद, अलंकार
6. **भाषा तत्व और व्याकरण:** वर्णमाला : (स्वर, व्यंजन भेद वर्णों का उच्चारण स्थान)

**शब्दभेद:** (रूप परिवर्तन के आधार पर विकारी अविकारी शब्द व्युत्पत्ति के आधार पर शब्द भेद रूढी, यौगिक, योग रूढ) उपसर्ग, प्रत्यय, लिंग वचन, कारक - काल - संधि - समास। पर्यायावाची शब्द, विलोम शब्द, शब्द परिचय तत्सम, तद्भव, देशी, विदेशी, क्रिया - सकर्मक, अकर्मक प्रेरणार्थक क्रियाएँ - मुहावरे, लोकोक्ति, कहावत, विराम चिह्न। वाक्य भेद, वाक्य और प्रयोग, वाक्य संरचना, भेद वाच्य कर्तृ वाच्य, कर्म वाच्य और भाव वाच्य पद-परिचय

7. हिंदी पाठ्य पुस्तकें (द्वितीय भाषा) छठवीं कक्षा से दसवीं कक्षा सहित (उपवाचक और पठनहेतु साहित्य)

**V. Methodology (Marks: 20)**

- भाषा-अर्थ, परिभाषा, महत्व, प्रकृति और स्वरूप, ध्वनि विज्ञान, शब्द विज्ञान, वाक्य विज्ञान, विविध स्तरों पर हिंदी शिक्षण के लक्ष्य और उद्देश्य, प्रथम भाषा के रूप में हिंदी द्वितीय भाषा के रूप में हिंदी, त्रिभाषा सूत्र, भारतीय संविधान में हिंदी का स्थान।
- हिंदी भाषा शिक्षण प्राथमिक, माध्यमिक और उच्च माध्यमिक स्तर पर
  - हिंदी भाषा - शिक्षण के उद्देश्य
  - अच्छे शिक्षण और अच्छे शिक्षण की विशेषताएँ
  - हिंदी अध्यापक और शिक्षण की विशेषताएँ
  - भाषा - शिक्षण के सामान्य सिद्धांत
  - भाषा शिक्षण प्रणालियाँ
  - भाषा शिक्षण की पद्धतियाँ (प्रत्यक्ष, परोक्ष, खेल मॉन्टेसरी, निर्देशित, डाल्टन, आगमन, सूक्ष्म शिक्षण आदि)
  - शिक्षण सूत्र
- शिक्षण में भाषा - कौशलों का महत्व**

**सुनना** - ध्वनि की उत्पत्ति - ध्वनि और श्रवण का पारस्परिक संबंध  
**बोलना** - शब्दोच्चारण, वाक्यंत्र, शुद्धोच्चारण का अभ्यास, मौखिक अभिव्यक्ति, पाठशाला में वार्तालाप का अभ्यास।  
**पठना:** वाचन की विशेषताएँ, प्रकार दोष और उपचार  
**लिखना:** महत्व, नियम विधियाँ, प्रकार, अक्षर-विन्यास
- पाठ्यक्रम और सहगामी क्रियाएँ**

पाठ्यक्रम-पाठ्य पुस्तक, पुस्तकालय - दृश्य - श्रव्य उपकरण (शिक्षण उपकरण)  
पाठ सहागामी क्रियाएँ, भाषा प्रयोगशाला।
- शिक्षण योजना:**
  - पाठ-योजना (गद्य, पद्य, व्याकरण, पत्र लेखन और रचना)
  - इकाई पाठ योजना
  - सूक्ष्म शिक्षण पाठ योजना
- मूल्यांकन**

मूल्यांकन की धारणा, निरंतर समग्र मूल्यांकन, उत्तम परीक्षा की विशेषताएँ, प्रश्न पत्र का निर्माण, उपलब्धि परीक्षा, निदानात्मक एवं उपचारात्मक शिक्षण, अभिलेख।

7. आंध्रप्रदेश में हिंदी शिक्षण में आनेवाली समस्याएँ व उनका निराकरण।
8. ध्वनि, वर्ण, शब्द, वाक्य रचना व शुद्धाशुद्ध वर्तनी व वाक्य ज्ञान।

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**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC -2022**

**SCHOOL ASSISTANT SYLLABUS - URDU**

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1. G.K& current Affairs -	-	10M
2. Perspectives in Education	-	05M
3. Classroom implications of Educational Psychology –		05M
4. Content	-	40M
5. Methodology	-	20M
Total	-	80 M

**PART - I**

**I. General Knowledge And Current Affairs (Marks: 10)**

**PART - II**

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**1. History of Education :**

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**6. National Educational Policy-2020**

**PART - III**

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## PART – IV

### **IV. Content (40 Marks)( Class VI To Intermediate level syllabus )**

I - جماعت ششم تا انٹرمیڈیٹ کی ریاست آندھرا پردیش کی طبع شدہ درسی کتابوں میں موجود مضامین -

(A) - شعراء و ادباء کی سوانح حیات ، ادبی کارنامے اور ان کے کرداروں کا جائزہ -

(B) - تصانیف ، اسباق کے مرکزی خیالات

(C) - ایوارڈس

II - لفظیات :-

(A) - معنی

(B) - مترادفات

(C) - ذومعنی

(D) - سابقے ، لاحقے

(E) - اضداد

(F) - محاورے

(G) - کہاوتیں -

III - زبان شناسی :-

(A) - مرکب الفاظ

(B) - علم عروض

(C) - متضاد الفاظ

(D) - جملے کی قسمیں ، اپنی نوعیت کے اعتبار سے فعل کی قسمیں -

IV - اردو زبان کی تاریخ :-

(A) - زبان کی ابتدا ، مفہوم ماہیت ارتقائی عوامل

(B) - زبان کی ابتدا اور مختلف نظریات

(C) - اقسام زبان

(D) - ہندوستانی دستور اور آندھرا پردیش میں اردو کا مقام و موقف -

V - (A) - علم بیان

(B) - رموز و اوقاف

(C) - حروف سنی و قمری

(D) - صنعتیں

(E) - غزل کے اجزاء

(F) - علم اعداد

(G) - تکرار لفظی

(H) - اصناف نثر و نظم

(I) - تذکیر و تانیث

(J) - فعل فاعل منقول

**V. Methodology (20 Marks)**

URDU METHODOLOGY اردو طریقہ تدریس

- (A) - زبان کی مہارتیں
- (B) - اردو کے تدریسی مقاصد
- (C) - معلم اردو اور تدریس
- (D) - تدریس اور اسباق کا منصوبہ
- (F) - نصابی اور ہم نصابی مشاغل
- (G) - اندازہ قدر
- (H) - قومی کونسل برائے فروغ اردو نئی دہلی کی خدمات -

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**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC - 2022**

**SCHOOL ASSISTANT SYLLABUS - ODIYA**

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1. G.K& current Affairs -	-	10M
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3. Classroom implications of Educational Psychology –		05M
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Total	-	80 M

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**PART - II**

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**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.

- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, SarvaSikshaAbhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), RashtriyaMadhyamikaSikshaAbhiyan(RMSA), RashtriyaAveshekarAbhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
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- Right of Children to Free and Compulsory Education Act - 2009
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#### 5. National Curriculum - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.

#### 6. National Educational Policy-2020



1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
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PART - IV

IV. CONTENT:-[40Marks] ( Class VI To Intermediate level syllabus )

- 1) ସଂସ୍କୃତଲେଖନୀୟାଦିଏବଂପଞ୍ଚମାଂସପାଠ୍ୟପୁସ୍ତକଅନ୍ତର୍ଗତବିଷୟ:-  
କବିଓଲେଖକମାନଙ୍କସମୟ, ସୃଷ୍ଟି ସମ୍ପଦ, ସେମାନଙ୍କଉପାଧି ଓ ପ୍ରାସ୍ତୁତପୁରସ୍କାର,  
ବିଷୟଗତ ମୁଖ୍ୟାଂଶ, ପୂର୍ବାପରପ୍ରସଙ୍ଗ, ଉଦ୍ଦେଶ୍ୟ, ବୈଶିଷ୍ଟ୍ୟ, ମୂଳରଚନା
- 2) ଶବ୍ଦଭଣ୍ଡାର :-  
ପାଠ୍ୟାଂଶଭିତ୍ତିକଶବ୍ଦାର୍ଥ, ପ୍ରତିଶବ୍ଦ, ଭିନ୍ନଜାତୀୟଶବ୍ଦ, ଯୁଗ୍ମଶବ୍ଦ,  
ବିପରୀତାର୍ଥବୋଧକଶବ୍ଦ, ସମୋଚ୍ଚାରିତଶବ୍ଦ, ଗଦ୍ୟ/ପଦ୍ୟରୂପ,  
ଏକପଦରେପ୍ରକାଶ, ଲିଙ୍ଗ, ବଚନ, ପୁରୁଷ, ରୂଢ଼ି, ଲୋକବାଣୀରଅର୍ଥ
- 3) ଭାଷାପ୍ରକରଣ:-  
ସନ୍ଧି, ସମାସ, ଛନ୍ଦ, ଅଳଙ୍କାର, ବିଭକ୍ତି, କାରକ, ଉପସର୍ଗ, ତଦ୍ଭିତ, କୃଦନ୍ତ,  
'ଶ'ଭବିଧି, 'ଷ'ଭବିଧି, ତତ୍ସମ, ତଦ୍ଭବ, ଦେଶଜ, ବୈଦେଶିକଓ ସାଧାରଣ  
ଅଶୁଦ୍ଧିଶବ୍ଦ
- 4) ବାକ୍ୟ ଓ ପଦ ପ୍ରକରଣ :-  
ବିଶେଷ୍ୟ, ବିଶେଷଣ, ସର୍ବନାମ, କ୍ରିୟା, ଅବ୍ୟୟ, ବାକ୍ୟବିଚାର, ପଦବିନ୍ୟାସ,  
ବାକ୍ସର ପ୍ରକାର ଉଦେ, ବାକ୍ସ ଓ ବାଚ୍ୟ ରୂପାନ୍ତର, ବାକ୍ସ ସଂକ୍ଷପେଶ
- 5) ଓଡ଼ିଆସାହିତ୍ୟରଇତିହାସ :-  
ଆଦିଯୁଗ, ସାରଳାଯୁଗ, ପଞ୍ଚସଖାଯୁଗ, ରୀତିଯୁଗଏବଂ  
ଆଧୁନିକଯୁଗ
- 6) ଭାଷାବିଜ୍ଞାନଅଧ୍ୟୟନରଇତିହାସ :-  
ଭାଷାବିଜ୍ଞାନରସଂଜ୍ଞାସ୍ୱରୂପ, ବିଭିନ୍ନବିଭାଗଓବିଭବ,  
ଧ୍ୱନିବିଜ୍ଞାନଏବଂଓଡ଼ିଆଭାଷାରଧ୍ୱନିଗତବୈଶିଷ୍ଟ୍ୟ, ଅର୍ଥବିଜ୍ଞାନ
- 7) ସାହିତ୍ୟସମାଲୋଚନା ଓ ଓଡ଼ିଆ ପତ୍ର ପତ୍ରିକା:-  
ଓଡ଼ିଆସମାଲୋଚନାସାହିତ୍ୟ ଏବଂ ଆଧୁନିକ ଓଡ଼ିଆ ସାହିତ୍ୟ ବିକାଶରେ  
ପତ୍ରପତ୍ରିକାର ଭୂମିକା
- 8) ଓଡ଼ିଆଭାଷାରଉନ୍ନେଷଓବିକାଶ :-  
ଶିଳାଲେଖ, ପ୍ରାଚୀନପୁରାଣ, କାବ୍ୟ, କବିତାଓଗଦ୍ୟସାହିତ୍ୟରଓଡ଼ିଆଭାଷା

**V. Methodology: - [20ମାର୍କ]**

1. ମାତୃଭାଷାର ଗୁରୁତ୍ୱ ଏବଂ ଶିକ୍ଷାଦାନର ଲକ୍ଷ୍ୟ ଓ ଉଦ୍ଦେଶ୍ୟ
2. ଭାଷାକୌଶଳ ଏବଂ ଶିକ୍ଷାମାନ
3. ପାଠ୍ୟଯୋଜନା
4. ଶିକ୍ଷଣ ଉପକରଣର ଭୂମିକା
5. ମାତୃଭାଷା ଶିକ୍ଷାଦାନ ପଦ୍ଧତି
6. ସହପାଠ୍ୟକାର୍ଯ୍ୟକ୍ରମ – ପ୍ରଯୁକ୍ତିବିଦ୍ୟା
7. ଭାଷା ପ୍ରୟୋଗ ଶାଳା
8. ସୃଜନଶୀଳତା ବିକାଶ
9. ନିରବଚ୍ଛିନ୍ନ ସଂବ୍ୟାପକ ମୂଲ୍ୟାୟନ [CCE]

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**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC -2022**

**SCHOOL ASSISTANT SYLLABUS - SANSKRIT**

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1. G.K& current Affairs -	-	10M
2. Perspectives in Education	-	05M
3. Classroom implications of Educational Psychology –		05M
4. Content	-	40M
5. Methodology	-	20M
Total	-	80 M

**PART - I**

**I. General Knowledge And Current Affairs (Marks: 10)**

**PART - II**

**II. Perspectives In Education (Marks: 05)**

**1. History of Education :**

- The Education in Ancient India -Pre-Vedic and Post-Vedic period, Medieval Education.
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- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

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#### 6. National Educational Policy-2020

### PART - III

#### III. Classroom implications of Educational Psychology – 05Marks

1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
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### PART - IV

#### IV. Content: (Marks: 40)( Class VI To Intermediate level syllabus )

Note: 6कक्ष्यातः12कक्ष्यापर्यन्तं प्राच्य / संयुक्त पाठशालासंस्कृतपाठ्यपुस्तकेषु  
विद्यमानांशाः पाठ्येतरांशाः च ।

कवयः - काव्यम् - रचयितारः - रचनाः स्तोत्राणि शास्त्रग्रन्थाः - कर्तारः ( आलङ्कारिक -  
न्याय व्याकरणेत्यादि ग्रन्थाः। ) इत्यादयः।

रचनाप्रक्रियाः इतिहास - पुराण - काव्य - नाटक - कथा - आत्मकथा - गीतम् -  
इत्यादि प्रक्रियानां स्वरूपविवरणम् - ।

वेदवाङ्मयम् - वेदाः - वेदाङ्गानि - उपनिषदः।

- भाषास्वरूपम् - भाषोत्पत्ति विषयकवादाः - भाषाकुटुंबम् - वैदिकलौकिक  
संस्कृतयोः साम्यं वैषम्यं च।
- साहित्यविमर्शः - काव्यप्रयोजनं - काव्यलक्षण - काव्यभेदाः - शैली -  
अलङ्कारसंप्रदायाः - रसवादाः च।
- संस्कृतव्याकरणम् - संज्ञाप्रकरणम्  
संधिप्रकरणम्  
समासप्रकरणम्  
स्त्रीप्रत्ययप्रकरणम्  
विभक्त्यर्थप्रकरणम्
- भाषांशाः समानार्थकाः  
विरुद्धार्थकाः  
छन्दः  
अलङ्कारः  
प्रत्ययाः  
विभक्तिः  
क्रियापदः  
व्युत्पत्त्यर्थाः  
संख्यावाचकाः  
प्रयोगविपरिणामः इत्यादयः
- पठनावगमनम् परिचित/अपरिचित पद्य/गद्यांशाः - तदाधारितप्रश्नाः।
- V. Methodology (20 Marks)**  
पाठ्यक्रमे संस्कृतस्य महत्त्वम् - स्थानम्।  
संस्कृतशिक्षणस्य उद्देश्यानि - सामान्यसिद्धान्ताः - शिक्षणापद्धतीः।  
पाठ्यक्रमयोजना - पाठ्यग्रन्थः।  
विद्यासांकेतिक - सहपाठ्यकार्यक्रमाः।  
विद्यालयव्यवस्था।  
साहित्यप्रक्रियाः बोधनापद्धतीः।  
शिक्षणाकौशलानि।  
मूल्याङ्कनम् - परीक्षा च।

**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC-2022**  
**DSC - SCHOOL ASSISTANT SYLLABUS -MATHAMETICS**

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### PART - IV

#### IV. Maths –Content (Class-VI to IntermediatePresent syllabus)(40 Marks)

##### 1. Arithmetic

Ratio and Proportion - Applications of Ratio- Comparing Quantities using proportion - Direct and Inverse proportion

##### 2. Number System

Knowing Our Numbers –rounding of numbers - Whole Numbers- predecessor – successor–number line -Playing With Numbers – divisibility rules -LCM & HCF - Integers - Fractions - Decimals -Rational Numbers -Squares, cubes Square roots, Cube roots

Real numbers -Representing irrational numbers on Number line – representing real numbers on the number line through successive magnification – rationalisation –Real numbers- operations on real numbers- law of exponents for real numbers- surds (exponential form & radical form )

Euclid's division lemma & its application in finding HCF – fundamental theorem of Arithmetic & its application (HCF & LCM, decimal representation of rational numbers (terminating or non-terminating recurring and vice versa))

Non-terminating & non recurring decimals as irrationals – irrationality of  $\sqrt{2}, \sqrt{3}$  etc.- properties of irrational numbers

Logarithm -exponential & logarithmic forms-Properties & Laws of logarithms-standard base of logarithm- use of logarithms in daily life situation-

Sets –& its representation (Roster form& set builder form)-examples- classification of sets(empty, finite, infinite, subset& super set, universal set, disjoint sets, power set of a set, equality of sets) Venn diagram – operations on sets ( union, intersection, difference, cardinal number of a set

### 3. Geometry

Measures of Lines and Angles - Symmetry - -Understanding 3D, 2D Shapes - Representing 3D in 2D-Lines and Angles -Triangle and Its Properties -Congruency of Triangles- -Quadrilaterals - Practical Geometry -Construction of Triangles Construction of Quadrilaterals - Exploring Geometrical Figures-

The Elements of Geometry -Area –Circles

Similar Triangles & Tangents and secants to a circle

Proofs in Mathematics

### 4. Mensuration

Perimeter and Area - Area of Plane Figures -Surface areas and Volumes

### 5. Algebra

Introduction to Algebra- Simple Equations- Exponents - Algebraic Expressions

- Exponents & Powers - Linear Equations in one variable – Factorisation Polynomials & Factorisation - Linear Equations in Two Variables - Pair of Linear Equations in Two Variables - Quadratic Equations-Progressions- Arithmetic Progression- properties of A.P.- Arithmetic mean –Geometric Progression –nth term–properties of AP,G.P.

Functions :

- Ordered pair- Cartesian product of sets – Relation - Function & its types - image & pre-image – Definitions.
- Inverse functions and Theorems.
- Domain, Range, Inverse of real valued functions.

Mathematical Induction

- Principle of Mathematical Induction & Theorems.
- Applications of Mathematical Induction.
- Problems on divisibility.

Matrices:

- Types of matrices
- Scalar multiple of a matrix and multiplication of matrices
- Transpose of a matrix
- Determinants
- Adjoint and Inverse of a matrix
- Consistency and inconsistency of Equations- Rank of a matrix
- Solution of simultaneous linear equations

Complex Numbers:

- Complex number as an ordered pair of real numbers- fundamental operations

- Representation of complex numbers in the form  $a+ib$ .
- Modulus and amplitude of complex numbers – Illustrations.
- Geometrical and Polar Representation of complex numbers in Argand plane- Argand diagram.

De Moivre's Theorem:

- De Moivre's theorem- Integral and Rational indices.
- $n^{\text{th}}$  roots of unity- Geometrical Interpretations – Illustrations.

Quadratic Expressions:

- Quadratic expressions, equations in one variable
- Sign of quadratic expressions – Change in signs – Maximum and minimum values
- Quadratic in-equations

Theory of Equations:

- The relation between the roots and coefficients in an equation
- Solving the equations when two or more roots of it are connected by certain relation
- Equation with real coefficients, occurrence of complex roots in conjugate pairs and its consequences
- Transformation of equations – Reciprocal Equations.

Permutations and Combinations:

- Fundamental Principle of counting – linear and circular permutations
- Permutations of 'n' dissimilar things taken 'r' at a time
- Permutations when repetitions allowed
- Circular permutations
- Permutations with constraint repetitions.
- Combinations-definitions and certain theorems

Binomial Theorem:

- Binomial theorem for positive integral index
- Binomial theorem for rational Index (without proof).
- Approximations using Binomial theorem

Partial fractions:

- Partial fractions of  $f(x)/g(x)$  when  $g(x)$  contains non-repeated linear factors.
- Partial fractions of  $f(x)/g(x)$  when  $g(x)$  contains repeated and/or non-repeated linear factors.
- Partial fractions of  $f(x)/g(x)$  when  $g(x)$  contains irreducible factors.

## 6. Statistics

DATA HANDLING -Frequency Distribution Tables and Graphs- Grouped data-ungrouped data – Measures of Central Tendency -Mean, median & mode of grouped and ungrouped data – Ogive curves –MEASURES OF DISPERSION -Range - Mean deviation -Variance and standard deviation of ungrouped/grouped data. -Coefficient of variation and analysis of frequency distribution with equal means but different variances.

## 7. Probability

Probability - Random experiment and outcomes -Equally likely outcomes - Trail and Events - Linking the chance to Probability - uses of probability in real life

Probability-a theoretical approach – probability & modelling –equally likely events - mutually exclusive events –finding probability – elementary event –exhaustive events - complementary events & probability – impossible & certain events – deck of cards & Probability –use & applications of probability -Probability

- Random experiments and events
- Classical definition of probability, Axiomatic approach and addition theorem of probability.

- Independent and dependent events conditional probability- multiplication theorem and Bayes's theorem.

Random Variables and Probability Distributions:

- Random Variables
- Theoretical discrete distributions – Binomial and Poisson Distributions

### 8.Coordinate Geometry

Cartesian system-Plotting a point in a plane if its co-ordinates are given.

Distance between two points - Section formula (internal division of a line segment in the ratio  $m : n$ ) – centroid of a triangle – trisectional points of a line segment -Area of triangle on coordinate plane- collinearity –straight lines -Slope of a line joining two points

Locus :

- Definition of locus – Illustrations.
- To find equations of locus - Problems connected to it.

Transformation of Axes :

- Transformation of axes - Rules, Derivations and Illustrations.
- Rotation of axes - Derivations – Illustrations.

The Straight Line :

- Revision of fundamental results.
- Straight line - Normal form – Illustrations.
- Straight line - Symmetric form.
- Straight line - Reduction into various forms.
- Intersection of two Straight Lines.
- Family of straight lines - Concurrent lines.
- Condition for Concurrent lines.
- Angle between two lines.
- Length of perpendicular from a point to a Line.
- Distance between two parallel lines.
- Concurrent lines - properties related to a triangle.

Pair of Straight lines:

- Equations of pair of lines passing through origin, angle between a pair of lines.
- Condition for perpendicular and coincident lines, bisectors of angles.
- Pair of bisectors of angles.
- Pair of lines - second degree general equation.
- Conditions for parallel lines - distance between them, Point of intersection of pair of lines.
- Homogenizing a second degree equation with a first degree equation in X and Y.

Circle :

- Equation of circle -standard form-centre and radius of a circle with a given line segment as diameter & equation of circle through three non collinear points - parametric equations of a circle.
- Position of a point in the plane of a circle – power of a point-definition of tangent-length of tangent
- Position of a straight line in the plane of circle-conditions for a line to be tangent – chord joining two points on a circle – equation of the tangent at a point on the circle-point of contact-equation of normal.
- Chord of contact - pole and polar-conjugate points and conjugate lines - equation of chord with given middle point.
- Relative position of two circles- circles touching each other externally, internally common tangents-centres of similitude- equation of pair of tangents from an external point.

System of circles:

- Angle between two intersecting circles.
- Radical axis of two circles- properties- Common chord and common tangent of two circles – radical centre.
- Intersection of a line and a Circle.

Parabola:

- Conic sections –Parabola- equation of parabola in standard form-different forms of parabola- parametric equations.
- Equations of tangent and normal at a point on the parabola (Cartesian and parametric) - conditions for straight line to be a tangent.

Ellipse:

- Equation of ellipse in standard form- Parametric equations.
- Equation of tangent and normal at a point on the ellipse (Cartesian and parametric) - condition for a straight line to be a tangent.

Hyperbola:

- Equation of hyperbola in standard form- Parametric equations.
- Equations of tangent and normal at a point on the hyperbola (Cartesian and parametric) - conditions for a straight line to be a tangent- Asymptotes.

Three Dimensional Coordinates :

- Coordinates.
- Section formulas - Centroid of a triangle and tetrahedron.

Direction Cosines and Direction Ratios :

- Direction Cosines.
- Direction Ratios.

Plane :

- Cartesian equation of Plane - Simple Illustrations.

## 9. Trigonometry

Trigonometry - Naming the side in a right triangle-trigonometric ratios – defining trigonometric ratios –trigonometric ratios of some specific angles ( $45^\circ, 30^\circ & 60^\circ, 0^\circ & 90^\circ$ ) –trigonometric ratios of complementary angles – trigonometric identities –Applications of Trigonometry - Line of sight & horizontal -Angle of elevation & depression -Drawing figures to solve problems – solution for two triangles

Trigonometric Ratios up to Transformations:

- Graphs and Periodicity of Trigonometric functions.
- Trigonometric ratios and Compound angles.
- Trigonometric ratios of multiple and sub- multiple angles.
- Transformations - Sum and Product rules.

Trigonometric Equations:

- General Solution of Trigonometric Equations.
- Simple Trigonometric Equations – Solutions.

Inverse Trigonometric Functions:

- To reduce a Trigonometric Function into a bijection.
- Graphs of Inverse Trigonometric Functions.
- Properties of Inverse Trigonometric Functions.

Hyperbolic Functions:

- Definition of Hyperbolic Function – Graphs.
- Definition of Inverse Hyperbolic Functions – Graphs.
- Addition formulas of Hyperbolic Functions.

Properties of Triangles:

- Relation between sides and angles of a Triangle
- Sine, Cosine, Tangent and Projection rules.
- Half angle formulae and areas of a triangle
- In-circle and Ex-circle of a Triangle.

## 10. Vector Algebra

Addition of Vectors:

- Vectors as a triad of real numbers.
- Classification of vectors.
- Addition of vectors.
- Scalar multiplication.
- Angle between two non-zero vectors.
- Linear combination of vectors.
- Component of a vector in three dimensions.
- Vector equations of line and plane including their Cartesian equivalent forms.

Product of Vectors:

- Scalar Product - Geometrical Interpretations - orthogonal projections.
- Properties of dot product.
- Expression of dot product in  $i, j, k$  system – Angle between two vectors.
- Geometrical Vector methods.
- Vector equations of plane in normal form.
- Angle between two planes.
- Vector product of two vectors and properties.
- Vector product in  $i, j, k$  system.
- Vector Areas.
- Scalar Triple Product.
- Vector equations of plane in different forms, skew lines, shortest distance and their Cartesian equivalents. Plane through the line of intersection of two planes, condition for coplanarity of two lines, perpendicular distance of a point from a plane, Angle between line and a plane. Cartesian equivalents of all these results
- Vector Triple Product – Results

## 11. Calculus

Limits and Continuity:

- Intervals and neighbourhoods.
- Limits.
- Standard Limits.
- Continuity.

Differentiation:

- Derivative of a function.
- Elementary Properties.
- Trigonometric, Inverse Trigonometric, Hyperbolic, Inverse Hyperbolic Function - Derivatives.
- Methods of Differentiation.
- Second Order Derivatives.

Applications of Derivatives:

- Errors and approximations.
- Geometrical Interpretation of a derivative.
- Equations of tangents and normal's.
- Lengths of tangent, normal, sub tangent and sub normal.
- Angles between two curves and condition for orthogonality of curves.

- Derivative as Rate of change.
- Rolle's Theorem and Lagrange's Mean value theorem without proofs and their geometrical interpretation.
- Increasing and decreasing functions.
- Maxima and Minima.

Integration:

- Integration as the inverse process of differentiation- Standard forms –properties of integrals.
- Method of substitution- integration of Algebraic, exponential, logarithmic, trigonometric and inverse trigonometric functions. Integration by parts.
- Integration- Partial fractions method.
- Reduction formulae.

Definite Integrals:

- Definite Integral as the limit of sum
- Interpretation of Definite Integral as an area.
- Fundamental theorem of Integral Calculus.
- Properties.
- Reduction formulae.
- Application of Definite integral to areas.

Differential equations:

- Formation of differential equation-Degree and order of an ordinary differential equation.
- Solving differential equation by
  - a) Variables separable method.
  - b) Homogeneous differential equation.
  - c) Non - Homogeneous differential equation.
  - d) Linear differential equations.

## V. Methodology (20 Marks)

1. Meaning and Nature of Mathematics, History of Mathematics.
2. Contributions of Great Mathematicians - Aryabhata, Bhaskaracharya, Srinivasa Ramanujan, Euclid, Pythagoras, George cantor.
3. Aims and Values of teaching Mathematics, Instructional objectives (Blooms taxonomy)
4. Mathematics curriculum: Principles, approaches of curriculum construction, -Logical and Psychological, Topical and Concentric, Spiral approaches. Qualities of a good Mathematics text book.
5. Methods of teaching mathematics- Heuristic method, Laboratory method, Inductive and Deductive methods, Analytic and Synthetic methods, Project method and Problem Solving method.
6. Unit Plan, Year Plan, Lesson Planning in Mathematics.
7. Instructional materials, Edgar Dale's Cone of Experience.
8. Evolving strategies for the gifted students and slow learners,
9. Techniques of teaching mathematics like Oral work, written work, Drilling, Assignment, Project, Speed and Accuracy.
10. Mathematics club, Mathematics structure, Mathematics order and pattern sequence.
11. Evaluation - Types, Tools and Techniques of Evaluation, Preparation of Standard Assessment Tools Analysis, Characteristics of a good test.

**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC -2022**

**SCHOOL ASSISTANT SYLLABUS – PHYSICAL SCIENCE**

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1. G.K & current Affairs -	-	10M
2. Perspectives in Education	-	05M
3. Classroom implications of Educational Psychology –		05M
4. Content	-	40M
5. Methodology	-	20M
Total	-	80 M

**PART - I**

**I. General Knowledge And Current Affairs (Marks: 10)**

**PART - I**

**II. Perspectives In Education (Marks: 05)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Siksha Abhiyan, National



Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), Rashtriya Aveshekar Abhiyan (RAA), KGBVs, Model Schools.

- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badi pelusthondi, Badi ki Vasta, Mavuru – Mana Badi, Vidyanjali, Swacha Patasala, Inspire, Kalavutsav.

**4. Acts / Rights:**

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

**5. National Curriculum - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.**

**6. National Educational Policy-2020**

**III. Classroom implications of Educational Psychology – 05Marks**

1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
2. **Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
3. **Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

**PART - B**

**IV. Content (Marks: 40) ( Class VI To Intermediate level syllabus )**

1. **Units and Measurements:** Systems of Measurement, Units of Measurements, Measurement of Length, Measurement of time, Accuracy, precision of instruments errors in measurement, Significant figures, Measurement of Mass and Density, Units and Dimensions Fundamental and derived physical quantities, Systems of units, Multiples and submultiples of SI units. Dimensions Dimensional formulae and dimensional equations, dimensional constants and dimensionless quantities, principle of homogeneity of dimensions. Application of dimensional method of analysis. Conversion of one system of units into another.
2. **Motion in a Straight Line**  
Position, path length and displacement, Average velocity and average speed, Instantaneous velocity and speed, Acceleration, Kinematic equations for uniformly accelerated motion, Relative velocity, Velocity-time and position-time graphs, Kinematical Equations of motion by graphical Method, Scalars and Vectors, laws of

addition of vectors, subtraction of vectors. Resolution of vectors, Motion in a plane, Motion in a plane with constant acceleration, Relative velocity in two dimensions, Projectile motion.

### **3. Laws of Motion**

The law of inertia, Newton's second law of motion, Newton's third law of motion. Force – Types of Force, Free Body Diagrams. Newton's Universal Gravitation, Centre of Mass, Centre of Gravity, Stability, Applications, Equations of Motion, Motion of a body under gravity - Acceleration due to Gravity "g", Equations of Motion for a freely falling body, Equations of Motion for a body thrown upwards. Equations, Applications and problems. Universal law of gravitation, The gravitational constant, Kepler's laws, Acceleration due to gravity of the earth, Acceleration due to gravity below and above the surface of earth, Gravitational potential energy, Escape speed, Earth satellite, Energy of an orbiting satellite, Geostationary and polar satellites, Weightlessness. Work, Power, Energy, Conservation of Energy and Transformation of Energy, Renewable and Non-Renewable sources of Energy, Impulse, Law of conservation of linear momentum, Potential Energy (PE), Kinetic Energy (KE). Relation between KE and Linear momentum. Notions of work and kinetic energy: The work-energy theorem, The work-energy theorem for a variable force, The conservation of mechanical energy, The potential energy of a spring, Power, Collisions, Circular Motion, uniform circular motion, angular displacement, angular velocity, and angular acceleration, relationship between linear velocity and angular velocity, centripetal and centrifugal force, torque, couple, vector representation of torque, Vector product of two vectors, Equilibrium of a rigid body, Moment of inertia, Theorems of perpendicular and parallel axes, Dynamics of rotational motion about a fixed axis, Rolling motion. Simple harmonic motion and uniform circular motion, Velocity and acceleration in simple harmonic motion, Force law for Simple harmonic Motion, Energy in simple harmonic motion, Energy in simple harmonic motion, some systems executing Simple. Harmonic Motion, Damped simple harmonic motion, Forced oscillations and resonance Simple Pendulum, Law of conservation of energy in case of a simple pendulum. Elasticity - Elasticity and plasticity, stress and strain, Hooke's law, Moduli of elasticity. Fluid Mechanics Laws of Floatation, Principle of Buoyancy, pressure in a fluid. Stream line flow Bernoulli's theorem and its applications. Viscosity, Reynolds number, Surface tension, Simple Machines and Moments Moment of a Force, Wheel and Axle, Screw Jack, Gears, Friction, Causes of friction, advantages of friction, disadvantages of friction, methods of reducing friction, Fluid friction, Ball – Bering Principal.

### **4. Light - Ray and Optical Instruments**

Light - Sources & Nature of Light, Propagation of Light, Reflection, Refraction, Laws of Reflection, Sign convention for reflection by spherical mirrors, Image formed by Plane Mirror, Spherical Mirrors (Ray diagrams), Mirror formula and Magnification, Refraction of Light through Prism and lenses (convex, concave), Refractive index, Snell's Law, Refractive index of material of prism by minimum deviation Method, Image formation by lenses (Ray Diagrams), Sign convention for spherical lenses, Lens formula, Len's Makers formula and magnification, Power of lenses, Refraction of light through prism and Glass Slab, Dispersion of light and formation of Rainbow, Scattering of light – Raman Effect. Atmospheric refraction (Twinkling of stars, Advanced sunrise and delayed sunset), the Human eye and Colourful world, Structure of Human Eye Defects of Vision, Critical angle, Total Internal Reflection - Relation between Critical angle and Refractive Index, application of total internal reflection to Optical fibers, Lasers. Newton's Corpuscular Theory, Huygens' Wave Theory, Electromagnetic spectrum. Huygens' Explanation of Reflection, Refraction, interference and diffraction

of plane waves at a plane surface. Polarisation Optical Instruments-Microscope, Telescope, Formula for magnification of microscope, Astronomical and Terrestrial Telescopes.

**5. Waves:** Transverse and longitudinal waves, Displacement relation in a progressive wave, The speed of a travelling wave, The principle of superposition of waves, Reflection of waves, Beats, Doppler effect, Characteristics of Sound, Speed of sound in different media, Reflection of sound, Echoes, standing waves, nodes & antinodes, measurement of wavelength, Multiple reflection of sound, its uses, Hearing and audibility of a sound, Ultrasound, uses, Sound -Propagation of sound, Musical Instruments, Velocity of Sound in Gases, Solids & Liquids, Progressive & stationary waves. Forced Vibrations, Natural Vibrations – Resonance with examples, Loudness and pitch of sound their relation with amplitude and frequency, Audible and inaudible sounds, Noise and music, Noise pollution: sources, control and reduction.

**6. Thermal Properties of Matter**

Sources of Heat, Transmission of Heat, Heat and Temperature, Temperature and Kinetic Energy, Measurement of Temperature, Fahrenheit and Centigrade scales, Different types of thermometers, Effects of Heat Expansion of solids, liquids, gaseous, Change of state, Change of density with temperature, Examples in daily life, Applications of specific heat capacity, Evaporation, Condensation, Humidity, Dew and Fog, Boiling, Melting and Freezing. Expansion of Solids and liquids-coefficients of expansion of Solids and liquids. Anomalous expansion of water, its significance in nature. Kelvin scale of temperature, Boyle's and Charle's laws. Ideal gas equation. Heat capacity, specific heat, experimental determination of specific heat by method of mixtures. Specific heat of gas ( $C_p$  and  $C_v$ ), Calorimetry - specific heat of solids and liquids, latent heat of fusion and latent heat of vaporization, External work done by a gas during its expansion. Relation between  $C_p$  and  $C_v$  (derivation) Latent heat, Determination of latent heat of vaporization of water. Newton's law of cooling, Thermal equilibrium, Zeroth law of thermodynamics, Heat, internal energy and work, First law of thermodynamics, Specific heat capacity, Thermodynamic state variables and equation of State, Thermodynamic processes, Heat engines, Refrigerators and heat pumps, Second law of thermodynamics, Reversible and irreversible processes, Carnot engine, Carnot's theorem. Kinetic Theory, Introduction, Molecular nature of matter, Behaviour of gases, Kinetic theory of an ideal gas, Law of equipartition of energy, Specific heat capacity, Mean free path.

**7. Electricity**

Electrostatics - Electrification by friction, Charges, Coulomb's Law: Permittivity of Free Space and Medium, Electric Field - Electric lines of force, their properties – Electric Flux, Electric Dipole, Dipole in a Uniform External Field, Continuous Charge Distribution, Gauss's Law, Application of Gauss's Law, Electric intensity, Electrostatic Potential, Relation between electrostatic potential and electric intensity. Capacitance and capacitors, The Parallel Plate Capacitor, Combination of Capacitors, Van de Graaff Generator, Dielectric constant, Condenser, its uses -Dielectric Strength - Effect of dielectric on capacitance of capacitors. Current electricity - Electric Current and Potential, EMF, Primary Cells-Series and Parallel connection-Electric circuits, Electrical Resistance, Ohm's Law and its verification, Electric shock. Ohmic and Non Ohmic elements, Resistance Resistances in Series and Parallel, Kirchhoff's Laws. Wheatstone Bridge, Meter Bridge, Potentiometer, Heating Effects of Electric Current-Joule's Law, Faraday's Laws of Electrolysis, Electric current - Flow of Electric charges in a metallic conductor - Drift velocity and mobility - Relation between electric current

and drift velocity, Specific Resistance, Resistivity, Conductance, Electrical Energy – Power, Electrical Energy consumption.

- 8. Electromagnetism** – Magnets and their properties, Magnetic field and field lines, Oersted's Experiment, Ampere's Law, Magnetic field near a long straight wire and magnetic field at the Center of a circular coil carrying current, Field on the axis of circular coil carrying current, Force on a moving charge in a magnetic field - Force on a current carrying conductor placed in a magnetic field. Force between two long straight parallel conductors carrying current, Definition of Ampere. Fleming's Left Hand Rule. Current loop as magnetic dipole, force and Torque on Current loop in an uniform magnetic field, magnetic dipole moment of a revolving electron. The Moving Coil Galvanometer, Electromagnetic induction, Magnetic Flux, Induced EMF, Faraday's and Lenz's Law. Fleming's Right Hand Rule, Self Inductance, Mutual Inductance, Principle of Transformer, Working of Electric motor, AC, Electric Generator, DC Electric Generator, Eddy Currents, Electromagnetic Waves, Displacement Current, Electromagnetic Waves, Electromagnetic Spectrum, AC Voltage Applied to a Resistor, Representation of AC Current and Voltage by Rotating Vectors — Phasors, AC Voltage Applied to an Inductor, AC Voltage Applied to a Capacitor, AC Voltage Applied to a Series LCR Circuit, Power in AC Circuit: The Power Factor, LC Oscillations.
- 9. Modern Physics** - Alpha-particle Scattering and Rutherford's Nuclear Model of Atom, Atomic Spectra, Bohr Model of the Hydrogen Atom, The Line Spectra of the Hydrogen Atom, DE Broglie's Explanation of Bohr's Second Postulate of Quantization, Atomic Masses and Composition of Nucleus, Size of the Nucleus, Mass-Energy and Nuclear Binding Energy, Nuclear Force, Radioactivity, Nuclear Energy, Electron Emission, Photoelectric Effect, Experimental Study of Photoelectric Effect, Photoelectric Effect and Wave Theory of Light, Einstein's Photoelectric Equation: Energy Quantum of Radiation, Particle Nature of Light: The Photon, Wave Nature of Matter, Davisson and Germer Experiment, Classification of Metals, Conductors and Semiconductors, Intrinsic Semiconductor, Extrinsic Semiconductor, p-n Junction, Semiconductor diode, Application of Junction Diode as a Rectifier, Special Purpose p-n Junction Diodes, Junction Transistor, Digital Electronics and Logic Gates, Integrated Circuits, Elements of a Communication System, Basic Terminology Used in Electronic Communication Systems, Bandwidth of Signals, Bandwidth of Transmission Medium, Propagation of Electromagnetic Waves, Modulation and its Necessity, Amplitude Modulation, Production of Amplitude Modulated Wave, Detection of Amplitude Modulated Wave.
- 10. Natural Phenomena** – Lightning: Charging by rubbing, Types of charges and nature of interaction of charged bodies, Transfer of charge: electroscope as a detector of charging, Lightning: discharge, earthing, lightning conductors, Safety measures during a thunder storm. Earthquake: Earthquake, Causes of an earthquake, Seismic fault zone, Protection to damage caused by earthquakes, Measurement of intensity of earthquake, Seismograph,
- 11. Our Universe:** Constellations, Zodiac, Solar System, The Sun, Planets, Their Sizes, Masses and distance from Sun, Source of Energy, The Moon its phases surface, Stars, Meteors and Comets, Asteroids, Light year, Life on the Planet - Earth.
- 12. States of Matter – Physical Nature of Matter** - Composition of matter: particles (Historical introduction), Characterization of matter in terms of physical properties, Characteristics of particles of matter: space between them, attraction between them,

their continuous motion, States of matter: solids, liquids and gasses, Shape, mass, volume and density of matter, Change of state of matter with temperature and pressure, Evaporation and condensation: factors effecting the rate of condensation/evaporation-surface area, temperature, humidity, wind speed. Evaporation and cooling with examples. Mixtures, type of mixtures, homogeneous and hetero generous, Solution, components, properties, concentration, dilute and saturated Solutions, Mass / Mass percentage; Mass / volume percentage, Suspension, properties of suspensions, Colloidal solution, properties of colloids, Tyndall effect, Separating the components of a mixture, Separating components of blue / black ink, evaporation, Cream from milk by churning, centrifugation, Separating immiscible liquids, Separation by sublimation Separation by chromatography, Separation by distillation (miscible liquids), fractional distillation, Separating components of air, Obtaining pure copper sulphate from impure samples Applications of crystallization, Water purification system in water works, Physical and chemical change, Types of pure substances, elements, compounds, Comparison between mixture and compounds **Solids**- Metals and Non-metals, Physical properties of metals, luster, malleability, electrical conductivity, ductility, sonorous, heat conductors, Physical properties of non-metals Chemical properties of metals - Metals burnt in air, Metal reacts with water, Reaction with acids, Reactions with solutions of other metal salt solutions, Reactivity series, Reactions of metals and non-metals – formation of cation, anion and ionic compounds, Properties of Ionic compounds, Physical nature, Melting and boiling points, Solubility Conduction of electricity, Occurrence of metals, Extractions of metals – General Principles Of Metallurgy Occurrence and Relative Abundance of metals in earth's crust, The Metallurgy of Iron & Extraction, Protection of Metals and Prevention of Corrosion, Principles and methods of extraction - concentration, reduction by chemical and electrolytic methods and refining. Reaction with oxygen, acidic, basic nature of products, Reaction with water, Reaction with acid, Reaction with Base, Reactivity of metals in displacement reactions, Uses of metals and non-metals – **FLUIDS**- Electric Conductivity of Fluids, determination of good and poor conducting fluids, Chemical effects of electric current, Electrolytic cell: its construction and electroplating: Measurable Properties of Gases, Gas Laws, Graham's law of diffusion - Daltons law of partial pressures, Avogadro's law and Mole Concept, Ideal behavior, empirical derivation of gas equation, ideal gas equation, Kinetic molecular theory of gases, Kinetic gas equation (No derivation) - deduction of gas laws, Air, Composition of air, Measurement of Atmospheric Pressure, Air Pollution, Volumetric Composition of Water, Hardness of Water, Drinking Water and Supply, Water Pollution, Cyclone, Pascal's Law, Archimedes' Principle, Boyle's Law, Bernoulli's Principle, Wind, Rainfall.

- 13. Atomic Structure:** Matter - Its Structure, Cathode Rays, Canal Rays, Discovery of Neutron, Atomic Models - Arrangement of Sub Atomic Particles, Rutherford's model of atom and its drawbacks, Bohr's model of Hydrogen atom and its limitations, Sommerfeld's elliptical model, Schrodinger wave equation, Sub Energy Levels - Quantum Numbers, Atomic Orbitals, Relative energies of the atomic orbitals, Electronic configuration of Atoms, Some Physical Quantities of Atoms, Nature of Electromagnetic Radiation, Planck's Quantum theory. Explanation of Photo electric effect. Features of Atomic Spectra. Characteristics of Hydrogen Spectrum. Bohr's explanation of Spectral Lines, Wave-particle nature of electron, De Brogile's hypothesis, Heisenberg's uncertainly principle, Important feature of the quantum mechanical model of an atom, Electronic configurations of atoms - Explanation of stability of half filled and completely filled orbitals. Isotopes, Isobars and Isotones, Applications of Radio Isotopes.

**14. Classification of Elements:** Symbols and formulae, Radicals and their formulae, Chemical equation, Meaning, Calculations based on equations and relationship of reactants and products by weights, History of Classification of Elements, The Periodic Law, Modern Periodic Table, The significance of atomic number and electronic configuration, Classification of elements into s, p, d, f blocks and their characteristics, Period trends in physical and chemical properties of elements, Periodic trends of elements with respect to atomic radii, ionic radii, inert gas radii, ionization energy, electron gain energy, electro negativity, Valency.

**15. Chemical Bonding and Molecular Structure:**

Types of Bonds, Inter Molecular Attractions, Energy changes during a chemical reaction, Exothermic and Endothermic Relations, ionic bond, Electronic theory valence by Lewis and Kossel, energy changes in ionic bond formation, Properties of ionic Compounds, Covalent Bond, Multiple Covalent Bonds, Shapes of some molecules. VSEPR theory, The valence bond approach for the formation of covalent bonds, Directional nature of covalent bond, Properties of covalent bond, Different types of hybridization involving s, p and d orbitals and draw shapes of simple covalent molecules, Definition of coordinate covalent bond with examples, Description of molecular orbital theory of homo nuclear diatomic molecules. Hydrogen bonding-cause of formation of hydrogen bond- Types of hydrogen bonds-inter and intra molecular-General properties of hydrogen bonds.

**16. Chemical Kinetics, Energetics:** Chemical Calculations And Stoichiometry Chemical combination, Chemical decomposition, Chemical displacement, Chemical Double decomposition, Slow and Fast reactions, Rate of a Reaction, Factors affecting the reaction rate, Reversible and Irreversible Reactions, Law of conservation of mass, Law of definite proportions, Law of multiple proportions, Rate law, units of rate constant, Collision theory of reaction rates (elementary ideas), concepts of activation energy. Stoichiometry - Meaning of Chemical Equations, Thermochemical Equations, Problems Based on Equations, Laws of chemical combination, principles and examples, Different kinds of fuels burning with flame and without flame, Combustion of fuels, solid, liquid, gas, Ignition temperature, Matchstick – red, white phosphorous and antimony tri Sulphide, ignition temperatures, Inflammable substances, Methods of controlling fire, fire extinguisher, Types of combustion, rapid, spontaneous, explosive. Flame, materials forming flames, structure of flame, Fuel, ideal fuel, fuel efficiencies, calorific value, Harmful products of burning fuels, global warming and acid rain. Molar mass, concept of equivalent weight with examples, Percentage composition of compounds and calculations of empirical and molecular formula of compounds, Oxidation number concept, Balancing of redox reactions by ion electron method and oxidation number method, Types of redox reactions, Applications of redox reactions in titrimetric quantitative analysis and redox reactions in electrode process, Numerical calculations based on equations. Equilibrium - Differences between Physical and Chemical change, Equilibrium in physical and chemical process, Dynamic nature of equilibrium, law of mass action, Equilibrium Constant, Factors affecting equilibrium.

**17. Solutions, Acids and Bases:**

Solutions, Types, Solubility and Factors affecting concentration of solutions, Ionization of Substances in Water, Classification of solutions - Methods of expressing concentration of solutions - Molarity, Normality, Molality, Mole Fraction, Preparation of Acids and Bases, General properties of Acids and Bases, The Strengths of Acids and Bases, Neutralization and Heat of Neutralization, Ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionic product of water, Concept of pH., pH of some common fluids, Importance of pH in everyday life, Sensitive of plants and

animals to pH, pH of soils, pH in digestive system, pH-tooth decay, Self defense by animal and plants through chemical warfare. Some naturally occurring acids. Salts - Family of salts, pH of salts, Sources of common salt, Common salt – a raw material for chemicals, NaOH, Bleaching powder, baking soda, NaHCO<sub>3</sub> uses washing soda and its uses, Salt crystals / crystallization, Plaster of Paris, Equilibrium in Physical process, Equilibrium in chemical process - Dynamic Equilibrium, Law of chemical Equilibrium - Law of mass action and Equilibrium constant. Homogeneous Equilibrium, Equilibrium constant in gaseous systems. Relationship between  $K_p$  and  $K_c$ , Heterogeneous Equilibria. Applications of Equilibrium constant. Relationship between Equilibrium constant  $K$ , reaction quotient  $Q$  and Gibbs energy  $G$ . Factors affecting Equilibria.-Le-chatelier principle application to industrial synthesis of Ammonia and Sulphur trioxide. Acids, bases and salts- Arrhenius, Bronsted-Lowry and Lewis concepts of acids and bases. Ionization of Acids and Bases -Ionization constant of water and its ionic product- pH scale-ionization constants of weak acids-ionization of weak bases-relation between  $K_a$  and  $K_b$ -Di and poly basic acids and di and poly acidic Bases-Factors affecting acid strength-Common ion effect in the ionization of acids and bases-Hydrolysis of salts and pH of their solutions. Buffer solutions-designing of buffer solution-Preparation of Acidic buffer Solubility Equilibrium of sparingly soluble salts. Solubility product constant Common ion effect on solubility of Ionic salts.

### **18. Hydrogen And Its Compounds**

Position of hydrogen in the periodic table. Dihydrogen-Occurance and Isotopes. Preparation of Di hydrogen, Properties of Di hydrogen, Hydrides: Ionic, covalent, and non-stoichiometric hydrides. Water: Physical properties; structure of water, ice. Chemical properties of water; hard and soft water, Temporary and permanent hardness of water, Hydrogen peroxide: Preparation; Physical properties; structure and chemical properties; storage and uses. Heavy Water, Hydrogen as a fuel.

### **19. S - Block Elements**

Alkali metals; Electronic configurations; Atomic and Ionic radii; Ionization enthalpy; Hydration enthalpy; Physical properties; Chemical properties; Uses, General characteristics of the compounds of the alkali, metals: Oxides; Halides; Salts of Oxy Acids. Anomalous properties of Lithium: Differences and similarities with other alkali metals. Diagonal relationship; similarities between Lithium and Magnesium. Some important compounds of Sodium: Sodium Carbonate; Sodium Chloride; Sodium Hydroxide; Sodium hydrogen carbonate. Biological importance of Sodium and Potassium. Alkaline earth elements; Electronic configuration; Ionization enthalpy; Hydration enthalpy; Physical properties, Chemical properties; Uses. General characteristics of compounds of the Alkaline Earth Metals: Oxides, hydroxides, halides, salts of Oxy acids (Carbonates; Sulphates and Nitrates). Anomalous behavior of Beryllium; its diagonal relationship with Aluminum. Some important compounds of calcium: Preparation and uses of Calcium Oxide ; Calcium Hydroxide; Calcium Carbonate; Plaster of Paris; Cement. Biological importance of Calcium and Magnesium.

### **20. P - Block Elements**

General introduction - Electronic configuration, Atomic radii, Ionization enthalpy, Electro negativity; Physical & Chemical properties. Important trends and anomalous properties of boron. Some important compounds of boron - Borax, Ortho boric acid, diborane. Uses of boron, aluminium and their compounds. General introduction - Electronic configuration, Atomic radii, Ionization enthalpy, Electro negativity; Physical & Chemical properties. Important trends and anomalous properties of carbon.

Allotropes of carbon. Uses of carbon. Some important compounds of carbon and silicon – carbon monoxide, carbon dioxide, Silica, silicones, silicates and zeolites.

## 21. Organic Chemistry

Allotropic forms of Carbon, Oxides of Carbon, Uniqueness of Carbon and Source of Carbon Compounds, Anomalous behavior of first element namely Carbon, Carbon-catenation, allotropic forms, physical and chemical properties and uses, Bonding in carbon, Covalent bond, Catenation, Saturated and unsaturated carbon compounds, Chains, branches and rings, Bonding of carbon with other elements, Functional groups in carbon compounds, Homologous series. Nomenclature of carbon compounds, Chemical properties of carbon compounds, Combustion, Blue flame, Sooty flame, Oxidation, Addition reaction, Substitution reaction, Important carbon compounds, Ethanol, Ethanoic acid, properties of ethanol – General properties, reaction of ethanol with sodium, reaction with hot concentrated sulphuric acid, Properties of ethanoic acid – General properties. Esterification reaction, Reaction with a base, sodium hydroxide, sodium carbonate and sodium hydrogen carbonate, Soaps and detergents, Micelles. . Classification and nomenclature, Nature of C-X bond, Methods of preparation : Alkyl halides and aryl halides-from alcohols, from hydrocarbons (a)by free radical halogenation -(b) by electrophilic substitution (c) by replacement of diazonium group(Sand-Meyer reaction) (d) by the addition of hydrogen halides and halogens to alkenes-by halogen exchange(Finkelstein reaction), Physical properties-melting and boiling points,density and solubility, Chemical reactions, Reactions of haloalkanes (i)Nucleophilic substitution reactions (a)  $\text{S}_{\text{N}}^2$  mechanism (b)  $\text{S}_{\text{N}}^1$  mechanism (c) stereochemical aspects of nucleophilic substitution reactions -optical activity (ii) Elimination reactions (iii) Reaction with metals-Reactions of haloarenes: (i) Nucleophilic substitution (ii)Electrophilic substitution and (iii) Reaction with metals, Polyhalogen compounds: Uses and environmental effects of dichloro methane, trichloromethane, triiodomethane, tetrachloro methane, freons and DDT. Alcohols,phenols and ethers –classification, Nomenclature: (a)Alcohols, (b)phenols and (c)ethers, Structures of hydroxy and ether functional groups, Methods of preparation: Alcohols from alkenes and carbonyl compounds- Phenols from haloarenes, benzene sulphonic acid, diazonium salts, cumene, Physical properties of alcohols and phenols, Chemical reactions of alcohols and phenols (i) Reactions involving cleavage of O-H bond-Acidity of alcohols and phenols, esterification (ii) Reactions involving cleavage of C-O bond- reactions with HX,  $\text{PX}_3$ , dehydration and oxidation (iii) Reactions of phenols- electrophilic aromatic substitution, Kolbe's reaction, Reimer - Tiemann reaction, reaction with zinc dust, oxidation, Commercially important alcohols (methanol,ethanol), Ethers-Methods of preparation: By dehydration of alcohols, Williamson synthesis- Physical properties-Chemical reactions: Cleavage of C-O bond and electrophilic substitution of aromatic ethers. Nomenclature and structure of carbonyl group, Preparation of aldehydes and ketones-(1) by oxidation of alcohols (2) by dehydrogenation of alcohols (3) from hydrocarbons -Preparation of aldehydes (1) from acyl chlorides (2) from nitriles and esters(3)from hydrocarbons-Preparation of ketones(1) from acyl chlorides (2)from nitriles (3)from benzene or substituted benzenes, Physical properties of aldehydes and ketones, Chemical reactions of aldehydes and ketones-nucleophilic addition, reduction, oxidation, reactions due to  $\alpha$ -Hydrogen and other reactions (Cannizzaro reaction,electrophilic substitution reaction), Uses of aldehydes and ketones, CARBOXYLIC ACIDS, Nomenclature and structure of carboxylgroup, Methods of



preparation of carboxylic acids- (1)from primary alcohols and aldehydes (2) from alkylbenzenes(3)from nitriles and amides (4)from Grignard reagents (5) from acyl halides and anhydrides (6) from esters, Physical properties, Chemical reactions: (i) Reactions involving cleavage of OH bond-acidity, reactions with metals and alkalis (ii) Reactions involving cleavage of C-OH bond-formation of anhydride, reactions with  $\text{PCl}_5$ ,  $\text{PCl}_3$ ,  $\text{SOCl}_2$ , esterification and reaction with ammonia (iii) Reactions involving  $-\text{COOH}$  group-reduction, decarboxylation (iv) Substitution reactions in the hydrocarbon part - halogenation and ring substitution, Uses of carboxylic acids. Structure of amines, Classification, Nomenclature, Preparation of amines:reduction of nitro compounds, ammonolysis of alkyl halides, reduction of nitriles, reduction of amides, Gabriel phthalimide synthesis and Hoffmann bromamide degradation reaction. Physical properties, Chemical reactions:basic character of amines, alkylation, acylation, carbyl amine reaction, reaction with nitrous acid, reaction with aryl sulphonyl chloride, electrophilic substitution of aromatic amines-bromination, nitration and sulphonation. DIAZONIUM SALTS - Methods of preparation of diazonium salts (by diazotization), Physical properties. Chemical reactions: Reactions involving CYANIDES AND ISOCYANIDES - Structure and nomenclature of cyanides and isocyanides, Preparation, physical properties and chemical reactions of cyanides and isocyanides

## 22. Polymers:

Classification of Polymers -Classification based on source, structure, mode of polymerization, molecular forces and growth polymerization. Types of polymerization reactions-addition polymerization or chain growth polymerization-ionic polymerization, free radical mechanism-preparation of addition polymers-polythene, teflon and polyacrylonitrile-condensation polymerization or step growth polymerization-polyamides-preparation of Nylon 6,6 and nylon 6-poly esters- erylene - bakelite, melamine, formaldehyde polymer- copolymerization-Rubber-natural rubber-vulcanisation of rubber-Synthetic rubbers-preparation of neoprene and buna-N. Molecular mass of polymers-number average and weight average molecular masses-poly dispersity index (PDI). Biodegradable polymers-PHBV, Nylon 2-nylon 6. Polymers of commercial importance-poly propene, poly styrene,poly vinyl chloride(PVC), urea-formaldehyde resin, glyptal, bakelite- their monomers, structures and uses. Natural and artificial fibres, Synthetic fibre, Types of synthetic fibres - Rayon, Nylon, Polyester and acrylic, Characteristics of synthetic fibres, Plastics, polythene, Thermo plastics, Thermo setting plastic, Plastics as materials of choice: Non-reactive, light, strong and durable and poor conducting plastics, Plastics and environment – Bio degradable, non-bio degradable. Carbohydrates - Classification of carbohydrates-Monosaccharides: preparation of glucose from sucrose and starch- Properties and structure of glucose- D,L and (+), (-) configurations of glucose- Structure of fructose Disaccharides: Sucrose- preparation, structure-Invert sugar- Structures of maltose and lactose-Polysaccharides: Structures of starch cellulose and glycogen- Importance of carbohydrates. Aminoacids: Natural aminoacids-classification of aminoacids -structures and D and L forms-Zwitter ions Proteins: Structures, classification, fibrous and globular- primary, secondary, tertiary and quaternary structures of proteins- Denaturation of proteins. Enzymes: Enzymes,mechanism of enzyme action. Vitamins: Explanation-names- classification of vitamins - sources of vitamins-deficiency diseases of different types of vitamins. Nucleic acids: chemical composition of nucleic acids ,structures of nucleic acids, DNA finger printing biological functions of nucleic acids. Hormones: Definition, different types of hormones, their production, biological activity, diseases due to their abnormal activities.

### 23. Chemistry In Everyday Life

Drugs and their classification: (a) Classification of drugs on the basis of pharmacological effect (b) Classification of drugs on the basis of drug action (c) Classification of drugs on the basis of chemical structure (d) Classification of drugs on the basis of molecular targets. Drug-Target interaction-Enzymes as drug targets (a) Catalytic action of enzymes (b) Drug-enzyme interaction Receptors as drug targets. Therapeutic action of different classes of drugs: antacids, antihistamines, neurologically active drugs: tranquilizers, analgesics-non-narcotic, narcotic analgesics, antimicrobials-antibiotics, antiseptics and disinfectants- antifertility drugs. Chemicals in food-artificial sweetening agents, food preservatives, antioxidants in food. Cleansing agents-soaps and synthetic detergents.

### 24. Environmental chemistry:

Sources of energy, Conventional sources of energy, Fossil fuels, Petroleum formation, refining of petroleum, constituents of petroleum, Natural gas, Petrochemicals, Thermal power plant, Hydro power plants, Improvements in the technology for using conventional sources of energy, Bio-Mass, Wind energy, Alternative or non-conventional sources of energy, Solar energy, Energy from sea, Tidal energy, Wave energy, Ocean thermal energy, Geothermal energy, Nuclear energy, Environmental consequences of production and consumption of energy, Sustainability of energy sources. Pollution: Air, Water and Soil Pollution, Oxides of Carbon, Carbon Monoxide, Oxides of nitrogen and Sulphur, Chlorofluro carbons, Chemical reactions in atmosphere, smogs, major atmospheric pollutants, acid rain, Ozone and its reactions, effects of depletion of ozone layer, Green house effect and global warming, Pollution due to industrial wastes, Green chemistry as an alternative tool for reducing pollution with two examples.

### V. Methodology (Marks: 20)

1. The Nature of Science: Nature and scope of science, Science, ideology and Society, Structure of Science (a) Substantive structure - Empirical knowledge, Theoretical Knowledge - (Facts, Concepts, hypothesis, theory, Principle Law), (b) Syntactic Structure of Science - Scientific inquiry, Processes of Science, Attitudes of inquiry
2. The History and Development of Science: A brief introduction to oriental and western science, Contribution of the following Scientists in the Development of Science: Aryabhatta, Bhaskara Charya, Aristotle, Copernicus, Newton, Einstein, C.V. Raman, Various organizations working for the development of science in India
3. Aims and Values of teaching Physical Sciences: Aims of teaching Physical Sciences, Values of teaching Physical Science, Correlation of Physics and Chemistry with other subjects
4. Objectives of teaching Physical Sciences: Meaning and importance of objectives, Bloom's Taxonomy of Educational objectives, Specific / Behavioral objectives / (Instructional objectives), Critique on Bloom's Taxonomy
5. Approaches and Methods of teaching Physical Sciences: Inductive and Deductive Approaches, Micro Teaching, Team Teaching, Lecture Method, Lecture cum Demonstration Method, Historical Method, Heuristic Method, Project Method, Laboratory method, Problem Solving Method, Scientific Method, Multimedia Approach in Teaching Learning process, Programmed Learning, CAI and CAL
6. Planning for effective instruction in Science: Year Plan, Unit Plan, Lesson Plan, Learning experience, characteristics, classification, source and relevance.
7. Teaching Learning Material (TLM): Characteristics and Importance of TLM, Classification and Types of TLM, Hardware and Software in TLM, TLM-Principles to be followed, Edgar Dale's cone of learning experience.

8. Science laboratories: Importance of Practical work in science, Planning of Science laboratories, Procurement, care and maintenance of laboratory equipment, Registers, Management of safety and science kits, Development of improvised Apparatus.
9. Physical Science Curriculum: Principles of Curriculum Construction, Defects in the existing school science curriculum, Qualities of a good Science Text Book.
10. Non-formal Science Education: Science Clubs, Science Fairs - purposes, levels, organization, advantages, Science Library, Role of NGOs and State in popularizing Science
11. Evaluation: Concept and Process of Evaluation, Tools of Evaluation, Preparation of Scholastic Achievement Test (SAT), Analysis and interpretation of Scores.

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**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC-2022**

**DSC - SCHOOL ASSISTANT SYLLABUS – BIOLOGICAL SCIENCE**

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<b>1. G.K &amp; current Affairs -</b>	-	<b>10M</b>
<b>2. Perspectives in Education</b>	–	<b>05M</b>
<b>3. Classroom implications of Educational Psychology –</b>		<b>05M</b>
<b>4. Content</b>	-	<b>40M</b>
<b>5. Methodology</b>	-	<b>20M</b>
<b>Total</b>	-	<b>80 M</b>

**PART - I**

**I. General Knowledge And Current Affairs (Marks: 10)**

**PART - II**

**II. Perspectives In Education (Marks: 05)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Siksha Abhiyan, National

Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), Rashtriya Aveshekar Abhiyan (RAA), KGBVs, Model Schools.

- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badi pelusthondi, Badi ki Vasta, Mavuru – Mana Badi, Vidyanjali, Swacha Patasala, Inspire, Kalavutsav.

**4. Acts / Rights:**

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

**5. National Curriculum - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.**

**6. National Educational Policy-2020**

**PART - III**

**III. Classroom implications of Educational Psychology – 05Marks**

1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
2. **Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
3. **Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

**PART - IV**

**IV. Content (Marks: 40) ( Class VI To Intermediate level syllabus )**

1. **Biological Sciences:** Importance and Human Welfare, Branches of Biology, Biologists.
2. **Living World:** Life and its Characteristics, Classification of Living Organisms, Nomenclature, different types of classification. Need for classification, Biological classification levels and Hierarchy of classification, species concept. Animal diversity, invertebrates, Chordates.
3. **Microbial World:** Virus, Bacteria, Algae, Fungi and Protozoan, Useful and Harmful Micro-organisms. Immunity, vaccination, Immunological disorders. Infections, life style diseases.

4. **Cell & Tissues:** Cell – Structure cell theory , cell organelles and their functions, differences between prokaryotic and Eukaryotic cells, plant cell and animal cell, cell cycle, cell division , Mitosis and Meiosis, tissues, structure, functions and types of plant and Animal tissues, Cancer biology, stem cells. Transportation of materials through the cells. Internal organization of plants, histology - anatomy of flowering plants.
5. **Plant World :** Morphology of a Typical Plant - Root, Stem, Leaf, Flower, Inflorescence, Fruit - their Structure, Types and Functions, Parts of a Flower, Seed dispersal Modifications of Root, Stem and Leaf, Photosynthesis, Transpiration, Transportation in plants (Ascent of Sap), Respiration, Excretion and Reproduction in Plants, Plant Hormones, food from the plants. Economic importance of Plants, Wild and Cultivated Plants, Agricultural Operations, Crop diseases and Control measures, Improvement in Crop yield, Storage, Preservation and Protection of Food and Plant Products. Single cell proteins (SCP), plant enzymes, mineral nutrition, plant growth and development.
6. **Animal World:** Organs and Organ Systems including man - Their Structure and Functions Digestive, Respiratory in human, type studies of the animals. Circulatory, . Immunology, Excretory, Locomotion in protozoa and humans - Muscular, Skeletal Systems, Nervous, Control and Coordination and Reproductive: Sexual, a sexual fission, syngamy, conjugation. Reproductive health – Birth control methods, Sense Organs: Structure and Functions of Eye, Ear, Nose, Tongue and Skin. Nutrition in man - Nutrients and their functions, Balanced Diet, Deficiency diseases, Health - Tropical diseases (Viral, Bacterial, Protozoan, Helminthes, Arthropod), Skin diseases (Fungal), Blindness in man: Causes, Prevention and Control, Health agencies, First Aid - Bites: Insect, Scorpion and Snakes, Fractures, Accidents, Life skills, Wild and Domesticated animals, Economic Importance of Animals, Animal Husbandry - Pisciculture, Sericulture, Poultry, Breeding of Cows and Buffaloes, animal behavior.
7. **Heredity and Evolution:** Terms, Mendel laws, Sex determination in humans, Inheritance of Blood Groups, Erythroblastosis foetalis, Theories of Evolution, Speciation, Evidences of Evolution, Human Evolution, sex linkage, genetic disorders, syndromes, human genome project, evolutionary forces, DNA and finger printing.
8. **Our Environment – Ecology:** Abiotic and Biotic factors of Ecosystems, Ecosystem - Types, components, adaptations, Food chains, Food web and Ecological pyramids, Natural Resources - Type of water managements, soil waste land management, forests, sustainable development, fossil fuels and bio fuels, 4Rs, bio-geo-chemical cycles, pollution, air, water, soil, global environmental issues – global warming – (Green House Effect), acid rains and depletion of Ozone layer; Population - interaction in Eco-system, plant ecology.
9. **Recent Trends in Biology:** Hybridization, Gene - Genetic material, DNA , RNA, Genetic Engineering, Gene Bank, Gene Therapy, Tissue Culture and Bio-Technology – applications. Transgenic animals and plants, cloning, molecular diagnosis, bio medical technology, bio molecules, molecular biology.
10. **Biodiversity – Conservation:** Biodiversity – levels of bio diversity, conservation, wild life, sanctuaries, national parks in India, importance of species, diversity to the Ecosystem.

## **V. Teaching Methodology (Marks: 20)**

1. The Nature & Scope of Science: A brief introduction of Oriental and Western Science, Nature of Science, Scope of Science, Substantive and Syntactic Structure of Science.
2. Aims and Values of Teaching Biological Sciences: Aims of teaching Biological Sciences, Values of teaching Biological Sciences.
3. Objectives of Teaching Biological Sciences: Importance of Objectives of Teaching Biological Sciences, Bloom's Taxonomy of Educational Objectives and limitations, Writing Instructional Objectives and Specifications.
4. Academic Standards in Biological Science.
5. Approaches and Methods of Teaching Biological Sciences: Inductive Approach and Deductive Approach, Methods of Teaching 1. Lecture Method, 2. Lecture cum Demonstration Method, 3. Heuristic Method, 4. Project Method, 5. Experimental Method, 6. Laboratory Method.
6. Planning for effective Instruction: Year Plan, Unit Plan, Lesson Plan - Herbartian and Bloom's Approach, Criteria for Evaluation of Lesson Plan. Self Evaluation and Peer Evaluation, Learning experiences - Characteristics, Classification, Sources and Relevance, Teaching - Learning Material and Resources in Biological Sciences.
7. Science Laboratories: Importance of Practical work in Biological Sciences, Planning Science Laboratory, Procurement, Care and Maintenance of Laboratory Equipment, Maintenance of different Registers, Safety and First aid, Development of Improvised Apparatus
8. Science Curriculum: Principles of Curriculum Construction, Defects in the existing School Science Curriculum, Correlation of Biological Sciences with other School Subjects, Qualities of a good Biological Science Text-book.
9. Biological Science Teacher: Qualities of a good Biological Sciences Teacher, Roles and Responsibilities
10. Non-formal Science Education: Science club, Eco-club, Blue-club, Red ribbon club, Science fairs - Objectives, levels of organizations, importance, Science Laboratories, Role of NGOs and State in popularizing science.
11. Evaluation: Concept and process of Measurement and Evaluation, Continuous Comprehensive Evaluation, Tools of Evaluation, Preparation of Scholastic Achievement Test(SAT), Analysis and interpretation of scores.

**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC -2022**

**SCHOOL ASSISTANT SYLLABUS –SOCIAL STUDIES**

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1. G.K& current Affairs -	-	10M
2. Perspectives in Education	-	05M
3. Classroom implications of Educational Psychology –		05M
4. Content	-	40M
5. Methodology	-	20M
Total	-	80 M

**PART - I**

**I. General Knowledge And Current Affairs (Marks: 10)**

**PART - II**

**II. Perspectives In Education (Marks: 05)**

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**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education



- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, SarvaSikshaAbhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), RashtriyaMadhyamikaSikshaAbhiyan(RMSA), RashtriyaAveshekarAbhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badipelusthondi, BadikiVasta, Mavuru – ManaBadi, Vidyanjali, SwachaPatasala, Inspire, Kalavutsav.

#### 4. Acts / Rights:

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

5. **National Curriculum** - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.

#### 6. National Educational Policy-2020

### **PART - III**

### **III. Classroom implications of Educational Psychology – 05Marks**

1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
2. **Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
3. **Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

### **PART - IV**

#### **IV. Content: (40 Marks)( Class VI To Intermediate level syllabus )**

##### **a) Classes VI – X Syllabus:**

##### **Theme - I: Diversity on the Earth**

Reading, Making and Analysis of Maps -different types of maps - directions -scale - conventional symbols use in maps-measuring heights , distances - Contour Lines-

Representation of relief features on maps- uses of maps- past and present-Maps Down the Ages-reading of thematic maps-atlas-globe-a model -the earth grid system- Using an atlas to find latitude and longitude of places, time.

Our Universe, the Sun and the Earth –energy from sun- temperature - The evolution of the Earth- earth movements – seasons- regions on earth-condition -Movements of the Earth’s-crust - Internal Structure of the Earth- Realms of the earth

Lithosphere- ‘first order’ landforms- oceans and continents-diverse features -Second Order landforms-mountains, plains and plateaus- diverse people living in different kinds of landforms in India and Andhra Pradesh -plate tectonics-Volcanoes-earth quakes –disaster management- Mining and minerals- new trends in mining and minerals.- renewable and non-renewable –Indian relief features –location-geological background-major relief divisions in India-and Andhra Pradesh

Hydrosphere- Hydrological cycle-water sources-oceans-relief of the oceans- salty-movements -oceans as resource waves,tides,currents-ocean as resource –Indian, Andhra Pradesh river and water resources –ground water-tanks-recharging ground water-floods- Rational and equitable Use of water-Andhra Pradesh water , land and trees protection act .

Atmosphere- structure of atmosphere Pressure Belts and Planetary Winds- Coriolis effect-winds- weather and climate –factors which influence weather and climate –seasons in india-types of rainfall- Global Warming and Climate Change-anthropological global warming - IPCC- Impact of climate change on India-

Biosphere- Natural vegetation- different kinds of forests- human society and environment-pollution and effects-depletion of resources- using and protecting forests

### **Theme - II: Production Exchange and Livelihoods**

From Gathering Food to Growing food – The Earliest People - Agriculture in Our Times - Trade in Agricultural Produce -Trade in Agricultural Produce – agricultural in India, Andhra Pradesh-types of farming-cropping season-crops-importance of agriculture –green revolution –effects- dry land agriculture –Food security – nutrition status –PDS-sustainable development and equity -handicrafts and handlooms- industrial revolution- beginning of industrial revolution- Sources of Energy and Industrial Development-urbanisation and slums-production in a factory Livelihood and Struggles Urban Workers - Minerals and Mining - Impact of Technology on Livelihoods –technology changes in agricultural, industrial ,service sectors -importance of transport system–transport system in India, traffic education – Andhra Pradesh- money and banking- finance literacy-credits and finance system- prices and cost of living - Role of government in regulating prices-The Government Budget and Taxation –direct and indirect taxes-industries in India-new policies for industries -service activities in India -growth and development-comparing of different countries and states-sectors of economy-employment- organized and unorganized sectors –employment in India-population –people and settlement-urbanisation in India , urbanisation problems-people and

migration –types of migrations –village economy –Globalization –factors –impact-fair globalization-other issues.

### **Theme -III: Political Systems and Governance**

Community Decision Making in a Tribe - Emergence of Kingdoms and Republics – Mahajanapadas- First Empires – Mouryan empire- Ashoka –kingdoms and empires in the Deccan-New Kings and Kingdoms(between 7 th and 12th centuries )-Mahamud ghazni – the Cholas and other- The Kakatiyas - Emergence of a Regional Kingdom- The Kings of Vijayanagara-Sri kirshna Devaraya-Mughal Empire- Establishment of British Empire in India- the revolt 1857-after revolt-British rule in India- Landlords and Tenants under the British and the Nizam - National Movement - The Early Phase 1885-1919 -National Movement - The Last Phase 1919-1947 –national movement in India – partition – integration of states- Independent India 1947-77 – state reorganisation-social and economic change-foreign policy – wars –emergency- independent India 1977-2000

Changing cultural tradition in Europe- the ancient , medieval world in Europe-renaissance-humanism-realism-the new concept of human beings-debates within Christianity –Beginning of the modern science-exploration of sea routes –democratic and nationalist revolution in 17<sup>th</sup>,18<sup>th</sup> and 19<sup>th</sup> centuries – the glorious revolution- American independence – frenchrevolution- rise of nationalism in Europe-the revolts 1830-1848 –Germany unification-unification of Italy-industrialisation and social change –social protest movements – luddism-socialism-women movements – colonialism in Latin America , Asia , Africa- impact of colonialism in India- adivasi revolts-the British government's industrial policy-labourers' struggles-the world between 1900-1950-world war I and world war II- causes – the treaty of Versailles – the league of nations-consequences of the world war-Russian socialist revolution-the great depression- Nazism –post war world and India – UNO-Cold war-non alignment movement- the growth of nationalism in the middle east-peace movement and collapse of USSR-National liberation movements in the colonies .

Democratic Government - Village Panchayats - Local Self – Government in Urban Areas – Making of Laws in the State Assembly-Implementation of Laws in the District - The Indian Constitution -the making of independent India 's constitution –Parliamentary system – federalism- the constitution today- Elections system in India – electoral literacy- Parliament and Central Government - Law and Justice –Supreme court –high court- other courts – worldly expansion of democracy- the democracy an evolving idea.

### **Theme -IV: Social Organisation and Inequities**

Diversity in Our Society - Towards Gender Equality –caste discrimination and the struggle for equalities –livelihood and struggles of Urban workers –workers rights –abolishment of zamindari system-poverty-Rights –Human rights and fundamental rights- Women rights , protection acts – children rights – RTI-RTE-legal service authority- LokAdalat –consumer rights - social movements in our time

### **Theme - V: Religion and Society**

Religion and Society in Early Times – hunter- gatherers-early farmers and herders-Indus valley civilisation –Vedas- Jainism ,Buddhism-folk religion-bhakthi-siddhas, yogis.- Sufism-Kabir – Gurunank-Devotion and Love towards God –Hindu religion-Bhakti movement-Christianity-Islam- the belief in supreme god-social and religious reform movements-Christian missionaries and oriental scholars-Bramhasamaj- AryaSamaj-Swami Vivekananda –reforms and education among Muslims –social reformers in Andhra Pradesh- social reforms and caste system-Narayana guru-JyothiraoPhule – Dr BR. Ambedker-understanding Secularism-

### **Theme -VI: Culture and Communication**

Language, Writing and Great Books - Sculptures and Buildings –Performing Arts and Artistes in Modern times-burra-katha – tholubommalata –bharatanatyam-Film and print media-role of media in freedom movement- sports Nationalism –other games and their status.

#### **b) Intermediate Syllabus:**

#### **Geography:**

General Geography-Definition and scope of Geography – Branches of Geography-Geography as an integrating Discipline and as Spatial Science with physical, biological and social sciences.

Solar System-Origin and Evolution of solar system-Rotation and Revolution of the Earth and their effects-Latitudes and Longitudes-Standard Time and International Date line.

The Earth - Interior of the Earth-Wegner’s theory of continental drift -Major Rock types and their characteristics.

Geomorphology -Major landforms: Mountains, Plateaus and Plains-Geomorphologic Process: Weathering - Physical and Chemical Weathering-Landforms associated with wind and river – Erosional and depositional.

Climatology -Climate: Elements of weather and climate-Atmosphere: Composition and structure of atmosphere -Insolation: Insolation and Heat Budget of the Planet Earth-Temperature: Factors influencing Temperature, Vertical and horizontal distribution of temperature Pressure- Global pressure belts WindsPlanetary winds, Seasonal and Local winds-Precipitation: Forms and types of rain fall (Convective, Orographic and Cyclonic rain fall).

Bio geography -Biomes of the world- Equatorial, Tropical and Temperate zones -Biodiversity and Conservation -Concept of Ecosystem and Ecological Balance- Oceanography, Hydrology and Natural hazards

Oceanography-Divisions of the Ocean floor- Continental shelf, Continental slope, Deep Sea plains and Ocean deeps-Ocean Temperatures- Vertical and horizontal distribution-Ocean Salinity Definition, vertical and horizontal distribution-Oceanic Movements: Waves, Tides and Currents, (Currents of Atlantic, Pacific and Indian Ocean )

Hydrology-Elements of Hydrological cycle: Precipitation, evaporation, evaporation-transpiration, run off, infiltration and recharge -Hydrological Cycle.

Natural Hazards-Causes and Spatial distribution of floods, droughts, cyclones, Tsunamis, Earthquakes and landslidesGlobal Warming and its consequences-Disaster Management in India-Human Geography : Definition, Content and scope- Man and Environment: Definition,

Content, Classification of environment-Environmental impact World Population : Growth, Factors influencing, density and distribution

Human activities - Primary, Secondary and tertiary activities-Resources - Definition, Classification and Conservation-Agriculture -Definition, Types, food crops (Rice and wheat) Nonfood crops (Cotton, Sugarcane) and Plantation crops-(Rubber, tea and coffee) their Significance, Conditions - for cultivation, production and distribution.

Definition and Classification (Metallic - Iron), nonMetallic – bauxite and (fuel minerals - coal and petroleum) Industries - Location factors, types of industries -Agro – based (Cotton textiles) Forest based (Paper mills) -Mineral based (Iron and steel) - Chemical based (Fertilizers)- Transportation -Road ways, Railways, Water ways and Air ways - Rail ways-Intensive net work rail way, Regional rail-ways and Trans continental railways - Water ways-Major sea ports: London, San Francisco-Reo De Janeiro, Cape Town, Kolkata and Sydney-Major Air ports- Tokyo, Paris, Chicago, Bogota and -Wellington

Physical features of India - Major features - Northern mountains, Indo – Gangetic-plains, Peninsular plateau of India and coastal plains- Major rivers of India - Perennial rivers- Indus, Ganges and Brahmaputra-Non Perennial rivers- Narmada, Tapi, Mahanadi, -Godavari, Krishna, Pennar and Cauvery - Climate of India - Cold weather season: Temperature Rainfall &Pressure distribution Hot weather season- Temperature, Rainfall &Pressure distribution South west monsoon season- Temperature, Rainfall &Pressure distribution North east monsoon season: Temperature, Rainfall &Pressure distribution-Natural vegetation of India-Types of vegetation based on rainfall and their-distribution. Evergreen forest, deciduous forest, scrub -forest,& Thorny forest -Soils - Definition, factors for formation, types and - their distribution.

Population- Growth trends from 1901 to 2001, Distribution based-on density, problems of high population- Irrigation-Types of irrigation: canals, wells and tanks. Major -multipurpose projects. Bakranagal, Hirakud, -Damodarvalley corporation and Nagarjuna Sagar-Agriculture: Cropped area, production and distribution of -selected crops: Rice, Wheat, Millets, Coffee, Tea, Sugarcane, Cotton, Jute and tobacco; Problems of Indian agriculture.

Minerals- Production and distribution of coal, petroleum, iron, mica and manganese, bauxite. Industries- Location factors growth and distribution of iron and steel, cotton textile and ship building industries- Transportation-Means of Transport – Road ways, Rail ways, Water - ways and Air ways; Major ports of India – Mumbai, -Cochin, Kandla, Kolkata, Visakhapatnam and Chennai.

Geography of Andhra Pradesh: Location, Physiography and Climate, Population.

### **History:**

What is History: Definition - Scope – Sources – Historiography – Relationship with other Social Sciences – Impact of Geography on history - Relevance of History.

Ancient Civilizations and Culture : Pre Harappan Cultures - Harappan Civilization – Script, town planning, society, economy and culture - Vedic age and Post Vedic Culture.

Early States, Empires and Economy: Early States – 16 Mahajanapadas - Rise of Magadha – Economy and Agriculture – urbanization.

Early Societies, and religious movements: Early Societies – Social differences – Religious movements – Jainism – Buddhism and other sects Ajjivikas and Lokayats.

Polity, Economy, Society and Culture between 3rd to 7th Century A.D. :Mauryas - Kushanas – Guptas – Pushyabhuties – Origin of feudalism – Polity, Society, Economy and Culture.

Deccan and South India up to 8th A.D: Sangam age – Satavahanas – Pallavas – Chalukyas – Rastrakutas – Cholas – Polity, Society, Economy and culture.

Age of Delhi Sultanate: Sources/Travellers Accounts - Arab Invasions – Turkish invasions – Delhi Sultanate – Polity, Economy, Society and Culture.

Age of Mughals: Chronicles/Sources – Mughal rule – Babur, Humayun, Shershah, Akbar, Jahangir, ShahJahan and Aurangazeb - Polity, Economy, Society and culture - Disintegration - Maratas, Sikhs.

Bhakti and Sufi Traditions 8 A.D. 16 Century A.D: Prevailing Religious Traditions and beliefs in the Society – Bhakti Saints and their Preachings – Sufism – Main features and their impact.

Deccan and South India 8th A.D – 16 the A.D : Sources - Kakatiyas – Vijyanagara – Bahamanis – Qutbshahis and Asafjahis – a brief survey.

India under the Colonial Rule : Sources - Portuguese – Dutch – French – English East India Company – Era of Governor Generals and their Polices – Reforms of Viceroy – 1857 Mutiny.

Indian National Movement: Background to National Movement, Socio-religious movement – rise of Nationalism – VandeMataram movement – Home rule movement – Emergence of Mahatma Gandhi and leadership – Revolutionary movement, Subhash Chandra Bose – Poona Pact Quit India movement – Partition of India – Emergence of Independent India.

The Modern World- Beginning of Modern Age, Renaissance, Development in Science, The Reformation Movement, Rise of Nation States, Struggle against Absolute Monarchies - Capitalism and Industrial Revolution -The Revolutionary Movements -The Glorious Revolution, The American war of Independence, The French Revolution of 1789 - .Nationalist Movements: Rise and fall of Napoleon, French Revolution of 1830 and the 1848 Revolt, Unification of Germany and Italy, Socialist Movements – Rise of Working class, Paris Commune of 1871

Imperialism: Factors in the rise of Imperialism, Forms and Methods of Imperialism, Scramble for Africa and Asia

Contemporary World: The First World war, League of Nations, The Russian Revolution of 1905 and 1917 -The World upto World War II: Rise of Fascism and Nazism, Militarism in Japan, U.S.A. and U.S.S.R. after World War I, Turkey after World War I, Failure of League of Nations, Spanish Civil war, World war II, The Nationalist Movements in Asia and Africa, Emergence of Latin America

The World after World War II: Formation of Military Blocks, Role of independent Nations of Asia and Africa in the World Affairs, Non-Alignment Movement, Role of UNO in preserving World Peace, Problems of Disarmament and Nuclear Weapons, Prominent Personalities of the World.

### **Civics:**

Scope and Significance of political Science - Introduction to Civics and Political Science, Origin and Evolution, Meaning, Definitions, What do we study? Why do we study?

State - State – Meaning, Definitions, Elements, Relation of state with other Institutions – Society, Association, Government.

Nationalism - Nation, Nationality, Nationalism, Factors contributing for Nationality, Is India a Nation? Meaning, Forms (Traditional and modern)

law -Meaning, Definitions, Classification, Law and morality, Rule of Law. Liberty and Equality – Meaning, Definitions, Types, Safeguards, Liberty – Equality.

Rights and Responsibilities– Meaning, Definitions, functions Forms, Relationship between Rights and Responsibilities, Human Rights

Justice - Justice – Meaning, Forms of Justice, Social Justice.

Citizenship - Meaning, Definitions, Methods of Acquiring, Citizen – Alien , Loss of Citizenship, Hindrances to Good Citizenship, Universal Citizenship

Democracy- Meaning, Definitions, features, types, merits, devices, future

Secularism -Meaning, Secular State, Western Model, Indian Model, Why India was made a Secular State? Criticism of Indian Secularism  
 Constitution– Meaning, Definitions, features, Classification  
 Government - Unitary, Federal, Parliamentary, Presidential, Theory of Separation of Powers, Organs of Government  
 Indian Constitution: Indian National Movement- Government of India Acts – 1909, 1919 & 1935-  
 Salient features of Indian Constitution  
 Fundamental Rights & Directive Principles of State Policy- Fundamental Rights- Directive Principles of state Policy- Fundamental Duties  
 Union Government- Union Executive – President of India - Vice – President of India - Prime Minister & Council of Ministers  
 Indian Parliament - Lok Sabha-Composition – Powers and functions- Rajya Sabha: Composition – Powers and functions  
 Parliamentary Committees- Public Accounts Committee – Estimates -Committee – Committee on Public Undertakings  
 Union Judiciary - Supreme Court of India – Composition- Powers and Functions of Supreme Court -of India - Judicial Review  
 State Government- State Executive – Governor- Powers and Functions-Chief Minister - Powers and Functions- Council of Ministers  
 State Legislature-Legislative Assembly- Composition – Powers and Functions- Legislative Council-Composition – Powers and Functions - Legislative Committees: Public Accounts Committee – Estimates-Committee and Ethics Committee  
 State Judiciary-High Court – Composition- Powers and Functions of High Court- District Courts: Composition – Powers and Functions.  
 Union – State Relations - Legislative Relations-Administrative Relations- Financial Relations  
 Local Government-Rural Local Government - Panchayati Raj Institutions – 73rd Constitution Amendment Act- Urban Local Government: Municipalities - Municipal Corporation – 74th Constitution Amendment Act- District Collector : Role in Local Governments  
 India's Foreign Policy - Determinants of Foreign Policy- Basic features of India's Foreign Policy-  
 South Asian Association for Regional Cooperation (SAARC)  
 United Nation Organization (UNO)-Origin of UNO-Principal Organs of UNO- Achievements and failures of UNO  
 Contemporary Trends and Issues- Globalization- Terrorism-Corruption.

### **Economics:**

Origin and meaning of Economics - Definitions of Economics; Adam Smith, Alfred Marshall, Lionel Robbins, Paul Samuelson, & Jacob Viner- Concept of Economics – Micro & Macro Economics Deductive and Inductive Method, Static and Dynamic Analysis, Positive and Normative Economics. Goods: (Free, Economic, Consumer, Producer, and Intermediary), Wealth, Income, Utility, Value, Price, wants and welfare.

Theory of Consumption - Cardinal and Ordinal Utility, the law of Diminishing Marginal Utility – Limitations – Importance; law of Equi-Marginal Utility Limitations and – Importance of the Law, Indifference Curve Analysis – Properties and Consumer's Equilibrium.

Theory of Demand - Meaning – Demand Function – Determinants of Demand, Demand Schedule – Demand Curve, Law of Demand, Exceptions to Law of Demand - Causes for the downward slope of the demand curve, Types of Demand – Price Demand, Income Demand,

and Cross Demand- Elasticity of Demand – Meaning and Types – Price Elasticity, and Income Elasticity and Cross Elasticity – Price Elasticity-Types; Measurement of Price Elasticity of Demand- Point Method. Arc Method, Total Outlay Method. Determinants of Elasticity of Demand; Importance of Elasticity of Demand.

Theory of Production - Meaning - Production Function – Factors of Production; Short-run and Long-run Production Function; Law of variable proportions - Law of returns to scale; Economies of Scale - Internal and External- Supply – Supply Function - Determinants of Supply — Law of Supply- Cost Analysis – Basic Concepts of Costs- (Money, Real, Opportunity, Fixed and Variable, Total, Average and Marginal costs)- Revenue Analysis – Revenue under perfect and imperfect competition.

Theory of Value - Meaning and Classification of Markets – Perfect competition – features – price determination- Short-run and Long-run equilibrium of a firm and Industry- Imperfect Competition – Monopoly – Price Determination – Price-Discrimination-Monopolistic Competition- Features- Meaning of Oligopoly – Duopoly.

Theory of Distribution - Determination of Factor Prices – Marginal Productivity Theory - Rent – Ricardian theory of Rent – Modern theory - Quasi Rent – Transfer earnings - Wages – Meaning and types of wages – Money and Real wages - Interest- Meaning – Gross and Net interests - Profits – Meaning – Gross and Net profits.

National Income : Definitions of National Income and Concepts- Measurement of National Income – Census of Product Method – Census of Income Method – Census of Expenditure Method- Methods of Measuring National Income in India; Problems and importance

Macro Economic Aspects - Classical theory of Employment –J.B. Say Law of Markets-Limitations – J.M. Keynes Effective Demand- Public Economics - Public Revenue – Public Expenditure – Public debt – Components of Budget.

Money, Banking and Inflation - Money – Definitions and Functions of money – Types of Money - Banking – Commercial Banks – Functions; Central Bank – Functions – Reserve Bank of India – Net Banking- Inflation – Definitions – Types – Causes and Effects of inflation – Remedial Measures.

Statistics for Economics - Meaning, Scope and Importance of Statistics in Economics with Diagrams (Bar diagrams and Pie diagrams)-Measures of central tendency – Mean, Median, Mode.

Economic Growth And Development - Differences Between Economic Growth and Development classification of the world countries - Indicators of Economic development - Determinants of Economic Development - Characteristic features of Developed Countries - Characteristic features of Developing countries with special reference to India

Population and Human Resources Development - Theory of Demographic Transition - World Population - Causes of rapid Growth of population in India - Occupational distribution of population of India - Meaning of Human Resources Development - Role of Education and Health in Economic Development- Human Development Index (HDI)

National Income - Trends in the growth of India's National Income - Trends in distribution of national income by industry Origin - Share of Public Sector and Private Sector in Gross Domestic Product - Share of Organised and Un-organised Sector in Net Domestic Product - Income Inequalities - Causes of Income Inequalities - Measures to control income inequalities -Unemployment in India – Poverty - Micro Finance-Eradication of Poverty

Agriculture Sector-Importance of agriculture in India - Features of Indian agriculture - Agriculture Labour in India - Land utilization pattern in India - Cropping pattern in India - Organic Farming -Irrigation facilities in India - Productivity of agriculture - Land holdings in India - Land reforms in India - Green Revolution in India - Rural credit in India - Rural Indebtedness in India - Agricultural



Marketing - Industrial Sector - Significance of the Indian Industrial Sector in Post –Reform Period -Industrial Policy Resolution 1948 - Industrial Policy Resolution 1956 - Industrial Policy Resolution 1991 - National Manufacturing Policy- Disinvestment - National Investment Fund (NIF) -Foreign Direct Investment -Special Economic Zones (SEZs) - Causes of industrial backwardness in India -Small Scale Enterprises (MSMEs) - Industrial Estates - Industrial Finance in India - The Industrial Development under the Five Year Plans in India.

Tertiary Sector - Importance of Services Sector -India’s Services Sector - State-Wise Comparison of Services - Infrastructure Development - Tourism - Banking and Insurance - Communication -Science and Technology - Software Industry in India

Planning And Economic Reforms - Meaning of Planning -NITI Ayog -Five Year Plans in India - XII Five Year Plan - Regional Imbalances - Role of Trade in Economic Development - Economic Reforms in India - GATT – WTO

Environment and Sustainable Economic Development - Environment - Economic Development -Environment and Economic Linkages. - Harmony between Environment & Economy

Economy Of Andhra Pradesh - History of Andhra Pradesh - Characteristic features of A.P. Economy -Demographic features - Occupational distribution of labour - Health Sector - Education -Environment - Agricultural sector - Industrial sector - Service and Infrastructure sector - Information and Technology - Tourism -Andhra Pradesh and Welfare Programmes/ Schemes

Economic Statistics - Measures of Dispersion - Definitions of Dispersion - Importance of Measuring Variation -Properties of a good measure of variation -Methods of Studying Variation - Measures of Dispersion for average - Lorenz Curve - Correlation -Index Numbers - Weighted Aggregation Method.

## **V. Methodology (Marks: 20)**

### **1. Aims and objectives of learning Social Sciences**

- values through Social Sciences - learning objectives and illustrations - learning objectives in constructivist approach - Academic Standards

### **2. School curriculum and resources in Social Sciences**

-NCF-2005, RTE-2009, SCF-2011 - syllabus – Learning Resources.

### **3. Social Sciences as an integrating area of study: Context and concerns**

- Distinguishing between Natural and Social Sciences - Social Studies and various Social Sciences -contributions of some eminent Social Scientists

### **4. Approaches and strategies for learning Social Sciences**

-Teaching methods- collaborative learning approach - 5E learning model - problem solving approach -concept mapping– planning: Lesson plan, Year Plan- Teaching Learning Material .

### **5. Community Resources and Social Sciences Laboratory**

### **6. Tools and techniques of assessment for learning: Social Sciences**

7. Understanding concept of Evaluation - CCE - assessment framework - assessment learning of students with special need

**Government of Andhra Pradesh  
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SPL DSC -2022**

**Category of Post: TGT**

**Paper I – ENGLISH LANGUAGE PROFICIENCY Test Syllabus**

**English: (Content) (Marks: 100)(Difficulty level upto Class X)**

VOCABULARY	LEVEL OF TESTING
<b>Synonyms</b>	Identification
<b>Antonyms</b>	Identification
<b>Homophones</b>	Identification
<b>Homonyms</b>	Identification
<b>Hypernyms and Hyponyms</b>	Identification
<b>Spelling</b>	Spelling
<b>Phrasal Verbs</b>	Identification of Meaning
<b>Word Formation</b>	Suffixes and Prefixes
<b>One word substitutes</b>	Referring to Persons / Professions and Places
<b>Short forms and Full forms</b>	Commonly used short forms and full forms in English
<b>Abbreviations and Full forms</b>	Commonly used Abbreviations and their full forms
<b>Helping Verbs</b>	Forms, contractions
<b>Modal Auxiliaries</b>	Form, Function & Contractions
<b>Ordinary Verbs</b>	Form, Function & Contractions
<b>Articles</b>	Use of Articles
<b>Prepositions</b>	Simple Prepositions Including Prepositions following Certain Words
<b>Clauses</b>	Main Clauses, sub-ordinate Clauses, Noun Clauses, If Clauses, Relative Clauses
<b>Sentence Structures</b>	Basic Sentence Structures
<b>Degrees of Comparison</b>	Form, Function, Construction, Transformation
<b>Language Functions</b>	Language Functions with social norms (Formal and Informal)
<b>Question Tags</b>	Imperatives and Statements
<b>Types of Sentences</b>	Types of Sentences
<b>Direct Speech &amp; Indirect Speech</b>	Statements, Questions, Imperatives
<b>Active Voice &amp; Passive Voice</b>	Active Voice & Passive Voice

<b>Tenses</b>	Use of tenses and framing including IF conditionals Type 1 &3
<b>Agreement between subject &amp; Verb</b>	Agreement between Subject & Verb
<b>Word Order</b>	Word Order in a phrase or a sentence
<b>Parts of Speech</b>	Nouns, Pronouns, Adjectives, Adverbs, Conjunctions - Types and functions
<b>Linkers</b>	Linkers
<b>Transformation of Sentences</b>	Simple, Compound and Complex Sentences
<b>Common Errors</b>	Based on all Vocabulary and Grammar Topics
<b>Punctuation and Capitalization</b>	Use of capital letters, comma, full stop, question mark, exclamation mark and inverted commas
<b>Writing of Discourses</b>	Letter Writing and News Report
<b>Dictionary Skills</b>	Dictionary Skills
<b>Reading Comprehension</b>	Prose (general)

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**Paper II – ENGLISH Syllabus**

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**PART - I**

**I. General Knowledge And Current Affairs (Marks: 10)**

**PART - II**

**II. Perspectives in Education (Marks: 05)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), Rashtriya Aveshekar Abhiyan (RAA), KGBVs, Model Schools.

- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badi pelusthondi, Badi ki Vasta, Mavuru – Mana Badi, Vidyanjali, Swacha Patasala, Inspire, Kalavutsav.

**4. Acts / Rights:**

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

**5. National Curriculum - Framework, 2005:** Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.

**6. National education Policy -2020**

**PART - III**

**III. Classroom Implications of Educational Psychology – 05m**

- 1. Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
- 2. Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
- 3. Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

**PART - IV**

**IV. Content (40 Marks) ( Class VI to Intermediate level syllabus )**

<b>VOCABULARY</b>	<b>LEVEL OF TESTING</b>
<b>Synonyms</b>	Identification of Shades of Meaning
<b>Antonyms</b>	Identifying Antonyms in a Context
<b>Homophones</b>	Identification & Usage
<b>Homonyms</b>	Identification & Usage
<b>Hypernyms &amp; Hyponyms</b>	Identification & Usage
<b>Spelling</b>	Spelling
<b>One-word Substitutes</b>	Referring to Persons / Professions, Places, Collections
<b>Phrasal Verbs</b>	Identification of Meaning and usage
<b>Idiomatic Expressions</b>	Identification, Usage
<b>Proverbs</b>	Proverbs
<b>Word Formation</b>	Suffixes, Prefixes and other forms
<b>Short Forms - Full Forms</b>	Common Short Forms - Full Forms
<b>Abbreviations - Full Forms</b>	Common Abbreviations - Full Forms
<b>Word Collocations</b>	Word Collocations
<b>Foreign Phrases Used in English</b>	Standard and common Foreign Phrases Used in English
<b>GRAMMAR</b>	<b>LEVEL OF TESTING</b>
<b>Helping Verbs</b>	Form, Function & Contractions
<b>Modal Auxiliaries</b>	Form, Function & Contractions
<b>Ordinary Verbs</b>	Form, Function & Contractions
<b>Articles</b>	Use of Articles Including Omissions
<b>Prepositions</b>	Simple, Compound Prepositions Including Prepositions following Certain Words and Prepositional Phrases

<b>Clauses</b>	Main Clauses, sub-ordinate Clauses, Adjectival Clauses, Noun Clauses, Adverbial Clauses, Relative Clauses, Finite and Non-finite Clauses
<b>Sentence Structures</b>	Sentence Structures
<b>Degrees of Comparison</b>	Form, Function, Construction, Transformation
<b>Language Functions</b>	Language Functions with social norms (formal and informal)
<b>Question Tags</b>	Imperatives and Statements with semi negatives and indefinites subjects
<b>Types of Sentences</b>	Types of Sentences
<b>Sentence Improvement</b>	Sentence Improvement
<b>Direct Speech &amp; Indirect Speech</b>	Statements, Questions, Imperatives and Exclamatory Sentences
<b>Active Voice &amp; Passive Voice</b>	Active Voice & Passive Voice
<b>Tenses</b>	Use of tenses and framing including IF conditionals Type 1, 2 &3
<b>Agreement between subject &amp; Verb</b>	Agreement between subject & Verb
<b>Word Order</b>	Word Order In a phrase or a sentence
<b>Parts of Speech</b>	Nouns, Pronouns, Adjectives, Adverbs, Conjunctions, Interjections - Types and functions
<b>Linkers</b>	Linkers
<b>Transformation of Sentences</b>	Simple. Compound and Complex Sentences
<b>Common Errors</b>	Based on all Vocabulary and Grammar Topics
<b>MECHANICS OF WRITING</b>	<b>LEVEL OF TESTING</b>
<b>Punctuation and Capitalization</b>	Use of capital letters, comma, full stop, question mark, exclamation mark and inverted commas

<b>COMPOSITION</b>	<b>LEVEL OF TESTING</b>
<b>Writing of Discourses</b>	Letter Writing, News Report, Diary Entry, Conversation, Description, Diary Entry, Biographical Sketch, Story, Script for a speech
<b>DICTIONARY SKILLS</b>	<b>LEVEL OF TESTING</b>
<b>DICTIONARY SKILLS</b>	DICTIONARY SKILLS
<b>PRONUNCIATION</b>	<b>LEVEL OF TESTING</b>
<b>Phonetics, Stress &amp; Intonation</b>	Phonetic Transcription and stress marking including intonation in context
<b>READING COMPREHENSION</b>	<b>LEVEL OF TESTING</b>
<b>Prose</b>	Prose (GENERAL)
<b>LITERATURE</b>	<b>LEVEL OR AREA OF TESTING</b>
<b>Background of English Literature</b>	Poetical Types, Stanza forms, School and Movements, Dramatic Types, The Essay, The Novel, The Short Story
<b>Literary Terms</b>	<p>*Parallelism, Prologue, epilogue, setting, the character, metre, diction, imagery, prosody, point of view, epic, mock epic, choreography, narration, classic, chorus, comedy, tragedy, conflict, plot, criticism, discourse, empathy, sympathy, style, theatre, feminism, soliloquy, folklore, structure;</p> <p>*Figures of Speech - Simile, Metaphor, Apostrophe, Personification, Metonymy, Synecdoche, irony and alliteration;</p> <p>*Rhyme Scheme</p>



<b>Poetry (Detailed Study)</b>	<ol style="list-style-type: none"> <li>1. Where the Mind Is without Fear (Rabindranath Tagore)</li> <li>2. The cloud (P.B.Shelly)</li> <li>3. The Nation's Strength (R.W.Emerson)</li> <li>4. Palanquin Bearers (Sarojini Naidu)</li> <li>5. The Road Not Taken (Robert Frost)</li> <li>6. La Belle Dame Sans Merci (John Keats)</li> <li>7. Telephone Conversation (Wole Soyinka)</li> <li>8. The Night of the Scorpion (Nissim Ezekiel)</li> </ol>
<b>Prose/ Essay (Detailed Study)</b>	<ol style="list-style-type: none"> <li>1. Of Truth (Francis Bacon)</li> <li>2. Self-reliance (R.W.Emerson)</li> <li>3. On Shaking Hands (A.G.Gardiner)</li> <li>4. Robots and People (Isaac Asimov)</li> </ol>
<b>Novels (Detailed Study)</b>	<ol style="list-style-type: none"> <li>1. Pride and Prejudice (Jane Austen)</li> <li>2. Swami and Friends (R.K.Narayan)</li> </ol>
<b>Drama (Detailed Study)</b>	<ol style="list-style-type: none"> <li>1. Macbeth (Shakespeare)</li> <li>2. Murder in the Cathedral (T.S.Eliot)</li> </ol>
<b>Short Story (Detailed Study)</b>	<ol style="list-style-type: none"> <li>1. The Gold Watch (Mulk Raj Anand )</li> <li>2. The Postmaster (Rabindranath Tagore)</li> <li>3. After Twenty Years (O' Henry)</li> <li>4. The Thief (Ruskin Bond)</li> </ol>

#### **V. METHODOLOGY (20 Marks)**

1. Aspects of language (English Language History, Nature, Importance, Principles of English as Second language and problems of Teaching / learning English)
2. Objectives of Teaching English
3. Development of language Skills (Listening, Speaking, Reading and Writing; Communicative Skills and Imparting values through Communication)
4. Approaches, Methods and Techniques of Teaching English (Introduction, Definition, Types of Approaches, Methods and Techniques of Teaching including Remedial Teaching)
5. Teaching of Structures, Vocabulary and Grammar
6. Teaching Learning Materials in English
7. Lesson Planning
8. Curriculum and Textbooks - Importance and need
9. Evaluation in English Language
10. Pronunciation, Phonetics and Phonetic Transcription

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**Paper II – TELUGU Syllabus**

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**PART - I**

**I. General Knowledge and Current Affairs (Marks: 10)**

**PART - II**

**II. Perspectives in Education (Marks: 05)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Ethics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, SarvaSikshaAbhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), RashtriyaMadhyamikaSikshaAbhiyan(RMSA), RashtriyaAveshekarAbhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badipelusthondi, BadikiVasta, Mavuru – ManaBadi, Vidyanjali, SwachaPatasala, Inspire, Kalavutsav.

**4. Acts / Rights:**

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

**5. National Curriculum - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.**

**6. National Educational Policy-2020**

**PART - III**

**III. Classroom implications of Educational Psychology – 05Marks**

- 1. Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
- 2. Learning:**Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
- 3. Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

**PART – IV**

**IV. Content (40 Marks) ( Class VI to Intermediate level syllabus )**

**1) 6వ తరగతి నుండి ఇంటర్మీడియట్ వరకు గల ఆంధ్రప్రదేశ్ ప్రభుత్వ తెలుగు వాచకాలలోని అంశాలు:**

(ఉపవాచకాలతో సహా)

**40 మార్కులు**

కవికాలాదులు, నేపథ్యాలు, ఉద్దేశాలు, మూల గ్రంథాలు, విశేషాంశాలు, ఇతివృత్తాలు, పాఠ్యాంశ విషయాలు మొ॥వి; విద్యాప్రమాణాలు.

**2) పదజాలం:**

అర్థాలు, పర్యాయపదాలు, నానార్థాలు, వ్యుత్పత్త్యర్థాలు, ప్రకృతి - వికృతులు, జాతీయాలు, సామెతలు మొ॥వి.

**3) భాషాంశాలు:**

సంఘలు, సమాసాలు, ఛందస్సు, అలంకారాలు, పారిభాషికపదాలు క్రియలు, వాక్యాలు మొ॥వి.

4) తెలుగు సాహిత్య చరిత్ర:

5) తెలుగు భాషా చరిత్ర:

తెలుగులో అన్యదేశాలు; మాండలికాలు; అర్థవిపరిమాణం; ధ్వనుల మార్పు

6) సాహిత్య విమర్శ:

7) బాల వ్యాకరణం:

సంజ్ఞ, సంధి, తత్సమ, ఆచ్ఛిక, సమాస, పరిచ్ఛేదములు.

8) ఛందస్సు: (వృత్తాలు, జాతులు, ఉపజాతులు)

యతులు, ప్రాసల రకాలు - ఛందో దర్పణం

#### V. తెలుగు బోధనా పద్ధతులు : 20 మార్కులు

బి.ఎడ్ తెలుగు బోధనా పద్ధతులు. (తెలుగు అకాడమీ ప్రచురణ)

1. భాష - వివిధ భావనలు
2. భాషానైపుణ్యాలు
3. ప్రణాళిక రచన - పాఠ్యగ్రంథాలు
4. విద్యా సాంకేతిక శాస్త్రం - సహపాఠ్య కార్యక్రమాలు
5. సాహిత్య ప్రక్రియలు - బోధనా పద్ధతులు
6. మూల్యాంకనం - పరీక్షలు

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**Paper II – HINDI Syllabus**

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**PART - I**

**I. General Knowledge and Current Affairs (Marks: 10)**

**PART - II**

**II. Perspectives in Education (Marks: 05)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

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- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
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- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
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#### 4. Acts / Rights:

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- Right to Information Act - 2005
- Child Rights
- Human Rights.

#### 5. National Curriculum - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.

#### 6. National Educational Policy-2020

### PART - III

#### **III. Classroom implications of Educational Psychology – 05Marks**

1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
2. **Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
3. **Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

### PART - IV

#### **IV. Content (Marks: 40)) ( Class VI to Intermediate level syllabus )**

1. **हिंदी साहित्य का इतिहास:** काल विभाजन - विभिन्न विद्वानों के विचार आदिकाल, भक्ति काल, रीति काल और आधुनिक काल
2. **आधुनिक साहित्य:** विभिन्न प्रवृत्तियाँ और प्रमुखवाद (छायावाद, प्रगतिवाद, प्रयोगवाद, रहस्यवाद आदि ) साहित्यिक विधाएँ (कविता, कहानी, उपन्यास, नाटक आदि)
3. **हिंदी भाषा का इतिहास:** उद्भव और विकास: हिंदी राष्ट्र भाषा, राजभाषा और विश्व भाषा के रूप में हिंदी देवनागरी लिपि का विकास, देश की एकता और हिंदी।
4. **हिंदी भाषा का क्षेत्र:** उपभाषाएँ और बोलियाँ
5. **भारतीय काव्यशास्त्र:** अर्थ, परिभाषा, प्रयोजन और लक्षण, रस, छंद, अलंकार
6. **भाषा तत्व और व्याकरण:** वर्णमाला : (स्वर, व्यंजन भेद वर्णों का उच्चारण स्थान) शब्दभेद: (रूप परिवर्तन के आधार पर विकारी अविकारी शब्द व्युत्पत्ति के आधार पर शब्द भेद रूढी, यौगिक, योग रूढ) उपसर्ग, प्रत्यय, लिंग वचन, कारक - काल - संधि - समास। पर्यायावाची शब्द, विलोम शब्द, शब्द परिचय तत्सम, तद्भव, देशी, विदेशी, क्रिया - सकर्मक, अकर्मक प्रेरणार्थक क्रियाएँ - मुहावरे, लोकोक्ति, कहावत,

विराम चिह्न। वाक्य भेद, वाक्य और प्रयोग, वाक्य संरचना, भेद वाच्य कर्तृ वाच्य, कर्म वाच्य और भाव वाच्य पद-परिचय

7. हिंदी पाठ्य पुस्तकें (द्वितीय भाषा) छठवीं कक्षा से दसवीं कक्षा सहित (उपवाचक और पठनहेतु साहित)

#### V. Methodology (Marks: 20)

- भाषा-अर्थ, परिभाषा, महत्व, प्रकृति और स्वरूप, ध्वनि विज्ञान, शब्द विज्ञान, वाक्य विज्ञान, विवध स्तरों पर हिंदी शिक्षण के लक्ष्य और उद्देश्य, प्रथम भाषा के रूप में हिंदी द्वितीय भाषा के रूप में हिंदी, त्रिभाषा सूत्र, भारतीय संविधान में हिंदी का स्थान।
- हिंदी भाषा शिक्षण प्राथमिक, माध्यमिक और उच्च माध्यमिक स्तर पर
  - हिंदी भाषा - शिक्षण के उद्देश्य
  - अच्छे शिक्षण और अच्छे शिक्षण की विशेषताएँ।
  - हिंदी अध्यापक और शिक्षण की विशेषताएँ
  - भाषा - शिक्षण के सामान्य सिद्धांत
  - भाषा शिक्षण प्रणालियाँ
  - भाषा शिक्षण की पद्धतियाँ (प्रत्यक्ष, परोक्ष, खेल माँन्तेसरी, निर्देशित, डाल्टन, आगमन, सूक्ष्म शिक्षण आदि)
  - शिक्षण सूत्र
- शिक्षण में भाषा - कौशलों का महत्व  
सुनना - ध्वनि की उत्पत्ति - ध्वनि और श्रवण का पारस्परिक संबंध  
बोलना - शब्दोच्चारण, वाक्यंत्र, शुद्धोच्चारण का अभ्यास, मौखिक अभिव्यक्ति, पाठशाला में वार्तालाप का अभ्यास।  
पढ़ना: वाचन की विशेषताएँ, प्रकार दोष और उपचार  
लिखना: महत्व, नियम विधियाँ, प्रकार, अक्षर-विन्यास
- पाठ्यक्रम और सहगामी क्रियाएँ  
पाठ्यक्रम-पाठ्य पुस्तक, पुस्तकालय - दृश्य - श्रव्य उपकरण (शिक्षण उपकरण)  
पाठ सहागामी क्रियाएँ, भाषा प्रयोगशाला।
- शिक्षण योजना:
  - पाठ-योजना (गद्य, पद्य, व्याकरण, पत्र लेखन और रचना)
  - इकाई पाठ योजना
  - सूक्ष्म शिक्षण पाठ योजना
- मूल्यांकन  
मूल्यांकन की धारणा, निरंतर समग्र मूल्यांकन, उत्तम परीक्षा की विशेषताएँ, प्रश्न पत्र का निर्माण, उपलब्धि परीक्षा, निदानात्मक एवं उपचारात्मक शिक्षण, अभिलेख।
- आंध्रप्रदेश में हिंदी शिक्षण में आनेवाली समस्याएँ व उनका निराकरण।
- ध्वनि, वर्ण, शब्द, वाक्य रचना व शुद्धाशुद्ध वर्तनी व वाक्य ज्ञान।

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**Paper II – MATHAMETICSSyllabus**

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**PART - I**

**I. General Knowledge and Current Affairs (Marks: 10)**

**PART - II**

**II. Perspectives in Education (Marks: 05)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
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- Current Trends in Education – Badipelusthondi, BadikiVasta, Mavuru – ManaBadi, Vidyanjali, SwachaPatasala, Inspire, Kalavutsav.
- 4. Acts / Rights:**
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  - Child Rights
  - Human Rights.
- 5. National Curriculum - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.**
- 6. National Educational Policy-2020**

### PART - III

#### III. Classroom implications of Educational Psychology – 05Marks

- 1. Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
- 2. Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
- 3. Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

### PART - IV

#### IV. Maths –Content (40 Marks)) ( Class VI to Intermediate level syllabus )

##### **1. Arithmetic**

Ratio and Proportion - Applications of Ratio- Comparing Quantities using proportion - Direct and Inverse proportion

##### **2. Number System**

Knowing Our Numbers –rounding of numbers - Whole Numbers- predecessor – successor–number line -Playing With Numbers – divisibility rules -LCM & HCF - Integers - Fractions - Decimals -Rational Numbers -Squares, cubes Square roots, Cube roots

Real numbers -Representing irrational numbers on Number line – representing real numbers on the number line through successive magnification – rationalisation –Real numbers- operations on real numbers- law of exponents for real numbers- surds( exponential form & radical form )

Euclid’s division lemma & its application in finding HCF – fundamental theorem of Arithmetic & its application (HCF & LCM, decimal representation of rational numbers (terminating or non-terminating recurring and vice versa))

Non-terminating & non recurring decimals as irrationals – irrationality of  $\sqrt{2}, \sqrt{3}$  etc.- properties of irrational numbers

Logarithm -exponential & logarithmic forms-Properties & Laws of logarithms-standard base of logarithm- use of logarithms in daily life situation-

Sets –& its representation (Roster form& set builder form)-examples- classification of sets(empty, finite, infinite, subset& super set, universal set, disjoint sets, power set of a set, equality of sets) Venn diagram – operations on sets ( union, intersection, difference, cardinal number of a set

### 3. Geometry

Measures of Lines and Angles - Symmetry - -Understanding 3D, 2D Shapes - Representing 3D in 2D-Lines and Angles -Triangle and Its Properties -Congruency of Triangles- -Quadrilaterals - Practical Geometry -Construction of Triangles Construction of Quadrilaterals - Exploring Geometrical Figures-

The Elements of Geometry -Area –Circles

Similar Triangles & Tangents and secants to a circle

Proofs in Mathematics

### 4. Mensuration

Perimeter and Area - Area of Plane Figures -Surface areas and Volumes

### 5. Algebra

Introduction to Algebra- Simple Equations- Exponents - Algebraic Expressions

- Exponents & Powers - Linear Equations in one variable – Factorisation Polynomials & Factorisation - Linear Equations in Two Variables - Pair of Linear Equations in Two Variables - Quadratic Equations-Progressions- Arithmetic Progression- properties of A.P.- Arithmetic mean –Geometric Progression –nth term–properties of AP,G.P.

Functions :

- Ordered pair- Cartesian product of sets – Relation - Function & its types - image & pre-image – Definitions.
- Inverse functions and Theorems.
- Domain, Range, Inverse of real valued functions.

Mathematical Induction

- Principle of Mathematical Induction & Theorems.
- Applications of Mathematical Induction.
- Problems on divisibility.

Matrices:

- Types of matrices
- Scalar multiple of a matrix and multiplication of matrices
- Transpose of a matrix
- Determinants
- Adjoint and Inverse of a matrix
- Consistency and inconsistency of Equations- Rank of a matrix
- Solution of simultaneous linear equations

Complex Numbers:

- Complex number as an ordered pair of real numbers- fundamental operations
- Representation of complex numbers in the form  $a+ib$ .
- Modulus and amplitude of complex numbers –Illustrations.
- Geometrical and Polar Representation of complex numbers in Argand plane- Argand diagram.

De Moivre's Theorem:

- De Moivre's theorem- Integral and Rational indices.
- $n^{\text{th}}$  roots of unity- Geometrical Interpretations – Illustrations.

### Quadratic Expressions:

- Quadratic expressions, equations in one variable
- Sign of quadratic expressions – Change in signs – Maximum and minimum values
- Quadratic in-equations

### Theory of Equations:

- The relation between the roots and coefficients in an equation
- Solving the equations when two or more roots of it are connected by certain relation
- Equation with real coefficients, occurrence of complex roots in conjugate pairs and its consequences
- Transformation of equations – Reciprocal Equations.

### Permutations and Combinations:

- Fundamental Principle of counting – linear and circular permutations
- Permutations of 'n' dissimilar things taken 'r' at a time
- Permutations when repetitions allowed
- Circular permutations
- Permutations with constraint repetitions.
- Combinations-definitions and certain theorems

### Binomial Theorem:

- Binomial theorem for positive integral index
- Binomial theorem for rational Index (without proof).
- Approximations using Binomial theorem

### Partial fractions:

- Partial fractions of  $f(x)/g(x)$  when  $g(x)$  contains non-repeated linear factors.
- Partial fractions of  $f(x)/g(x)$  when  $g(x)$  contains repeated and/or non-repeated linear factors.
- Partial fractions of  $f(x)/g(x)$  when  $g(x)$  contains irreducible factors.

## 6. Statistics

**DATA HANDLING** -Frequency Distribution Tables and Graphs- Grouped data-ungrouped data – Measures of Central Tendency -Mean, median & mode of grouped and ungrouped data – Ogive curves –MEASURES OF DISPERSION -Range - Mean deviation -Variance and standard deviation of ungrouped/grouped data. -Coefficient of variation and analysis of frequency distribution with equal means but different variances.

## 7. Probability

Probability - Random experiment and outcomes -Equally likely outcomes - Trail and Events - Linking the chance to Probability - uses of probability in real life

Probability-a theoretical approach – probability & modelling –equally likely events - mutually exclusive events –finding probability – elementary event –exhaustive events - complementary events & probability – impossible & certain events – deck of cards & Probability –use & applications of probability -Probability

- Random experiments and events
- Classical definition of probability, Axiomatic approach and addition theorem of probability.
- Independent and dependent events conditional probability- multiplication theorem and Bayes's theorem.

### Random Variables and Probability Distributions:

- Random Variables
- Theoretical discrete distributions – Binomial and Poisson Distributions

## 8.Coordinate Geometry

Cartesian system-Plotting a point in a plane if its co-ordinates are given.

Distance between two points - Section formula (internal division of a line segment in the ratio  $m : n$ ) – centroid of a triangle – trisectional points of a line segment -Area of triangle on coordinate plane- collinearity –straight lines -Slope of a line joining two points

Locus :

- Definition of locus – Illustrations.
- To find equations of locus - Problems connected to it.

Transformation of Axes :

- Transformation of axes - Rules, Derivations and Illustrations.
- Rotation of axes - Derivations – Illustrations.

The Straight Line :

- Revision of fundamental results.
- Straight line - Normal form – Illustrations.
- Straight line - Symmetric form.
- Straight line - Reduction into various forms.
- Intersection of two Straight Lines.
- Family of straight lines - Concurrent lines.
- Condition for Concurrent lines.
- Angle between two lines.
- Length of perpendicular from a point to a Line.
- Distance between two parallel lines.
- Concurrent lines - properties related to a triangle.

Pair of Straight lines:

- Equations of pair of lines passing through origin, angle between a pair of lines.
- Condition for perpendicular and coincident lines, bisectors of angles.
- Pair of bisectors of angles.
- Pair of lines - second degree general equation.
- Conditions for parallel lines - distance between them, Point of intersection of pair of lines.
- Homogenizing a second degree equation with a first degree equation in X and Y.

Circle :

- Equation of circle -standard form-centre and radius of a circle with a given line segment as diameter & equation of circle through three non collinear points - parametric equations of a circle.
- Position of a point in the plane of a circle – power of a point-definition of tangent-length of tangent
- Position of a straight line in the plane of circle-conditions for a line to be tangent – chord joining two points on a circle – equation of the tangent at a point on the circle-point of contact-equation of normal.
- Chord of contact - pole and polar-conjugate points and conjugate lines - equation of chord with given middle point.
- Relative position of two circles- circles touching each other externally, internally common tangents-centres of similitude- equation of pair of tangents from an external point.

System of circles:

- Angle between two intersecting circles.
- Radical axis of two circles- properties- Common chord and common tangent of two circles – radical centre.
- Intersection of a line and a Circle.

Parabola:

- Conic sections –Parabola- equation of parabola in standard form-different forms of parabola- parametric equations.
- Equations of tangent and normal at a point on the parabola (Cartesian and parametric) - conditions for straight line to be a tangent.

Ellipse:

- Equation of ellipse in standard form- Parametric equations.
- Equation of tangent and normal at a point on the ellipse (Cartesian and parametric) - condition for a straight line to be a tangent.

Hyperbola:

- Equation of hyperbola in standard form- Parametric equations.
- Equations of tangent and normal at a point on the hyperbola (Cartesian and parametric) - conditions for a straight line to be a tangent- Asymptotes.

Three Dimensional Coordinates :

- Coordinates.
- Section formulas - Centroid of a triangle and tetrahedron.

Direction Cosines and Direction Ratios :

- Direction Cosines.
- Direction Ratios.

Plane :

- Cartesian equation of Plane - Simple Illustrations.

## 9. Trigonometry

Trigonometry - Naming the side in a right triangle-trigonometric ratios – defining trigonometric ratios –trigonometric ratios of some specific angles ( $45^\circ, 30^\circ & 60^\circ, 0^\circ & 90^\circ$ ) –trigonometric ratios of complementary angles – trigonometric identities –Applications of Trigonometry - Line of sight & horizontal -Angle of elevation & depression -Drawing figures to solve problems – solution for two triangles

Trigonometric Ratios up to Transformations:

- Graphs and Periodicity of Trigonometric functions.
- Trigonometric ratios and Compound angles.
- Trigonometric ratios of multiple and sub- multiple angles.
- Transformations - Sum and Product rules.

Trigonometric Equations:

- General Solution of Trigonometric Equations.
- Simple Trigonometric Equations – Solutions.

Inverse Trigonometric Functions:

- To reduce a Trigonometric Function into a bijection.
- Graphs of Inverse Trigonometric Functions.
- Properties of Inverse Trigonometric Functions.

Hyperbolic Functions:

- Definition of Hyperbolic Function – Graphs.
- Definition of Inverse Hyperbolic Functions – Graphs.
- Addition formulas of Hyperbolic Functions.

Properties of Triangles:

- Relation between sides and angles of a Triangle
- Sine, Cosine, Tangent and Projection rules.
- Half angle formulae and areas of a triangle
- In-circle and Ex-circle of a Triangle.

## 10. Vector Algebra

Addition of Vectors:

- Vectors as a triad of real numbers.
- Classification of vectors.
- Addition of vectors.
- Scalar multiplication.
- Angle between two non-zero vectors.
- Linear combination of vectors.
- Component of a vector in three dimensions.
- Vector equations of line and plane including their Cartesian equivalent forms.

Product of Vectors:

- Scalar Product - Geometrical Interpretations - orthogonal projections.
- Properties of dot product.
- Expression of dot product in  $i, j, k$  system – Angle between two vectors.
- Geometrical Vector methods.
- Vector equations of plane in normal form.
- Angle between two planes.
- Vector product of two vectors and properties.
- Vector product in  $i, j, k$  system.
- Vector Areas.
- Scalar Triple Product.
- Vector equations of plane in different forms, skew lines, shortest distance and their Cartesian equivalents. Plane through the line of intersection of two planes, condition for coplanarity of two lines, perpendicular distance of a point from a plane, Angle between line and a plane. Cartesian equivalents of all these results
- Vector Triple Product – Results

## 11. Calculus

Limits and Continuity:

- Intervals and neighbourhoods.
- Limits.
- Standard Limits.
- Continuity.

Differentiation:

- Derivative of a function.
- Elementary Properties.
- Trigonometric, Inverse Trigonometric, Hyperbolic, Inverse Hyperbolic Function - Derivatives.
- Methods of Differentiation.
- Second Order Derivatives.

Applications of Derivatives:

- Errors and approximations.
- Geometrical Interpretation of a derivative.
- Equations of tangents and normal's.
- Lengths of tangent, normal, sub tangent and sub normal.
- Angles between two curves and condition for orthogonality of curves.
- Derivative as Rate of change.
- Rolle's Theorem and Lagrange's Mean value theorem without proofs and their geometrical interpretation.
- Increasing and decreasing functions.
- Maxima and Minima.

Integration:

- Integration as the inverse process of differentiation- Standard forms –properties of integrals.
- Method of substitution- integration of Algebraic, exponential, logarithmic, trigonometric and inverse trigonometric functions. Integration by parts.
- Integration- Partial fractions method.
- Reduction formulae.

Definite Integrals:

- Definite Integral as the limit of sum
- Interpretation of Definite Integral as an area.
- Fundamental theorem of Integral Calculus.
- Properties.
- Reduction formulae.
- Application of Definite integral to areas.

Differential equations:

- Formation of differential equation-Degree and order of an ordinary differential equation.
- Solving differential equation by
  - a) Variables separable method.
  - b) Homogeneous differential equation.
  - c) Non - Homogeneous differential equation.
  - d) Linear differential equations.

#### **V. Methodology (20 Marks)**

1. Meaning and Nature of Mathematics, History of Mathematics.
2. Contributions of Great Mathematicians - Aryabhata, Bhaskaracharya, Srinivasa Ramanujan, Euclid, Pythagoras, George cantor.
3. Aims and Values of teaching Mathematics, Instructional objectives (Blooms taxonomy)
4. Mathematics curriculum: Principles, approaches of curriculum construction, -Logical and Psychological, Topical and Concentric, Spiral approaches. Qualities of a good Mathematics text book.
5. Methods of teaching mathematics- Heuristic method, Laboratory method, Inductive and Deductive methods, Analytic and Synthetic methods, Project method and Problem Solving method.
6. Unit Plan, Year Plan, Lesson Planning in Mathematics.
7. Instructional materials, Edgar Dale's Cone of Experience.
8. Evolving strategies for the gifted students and slow learners,
9. Techniques of teaching mathematics like Oral work, written work, Drilling, Assignment, Project, Speed and Accuracy.
10. Mathematics club, Mathematics structure, Mathematics order and pattern sequence.
11. Evaluation - Types, Tools and Techniques of Evaluation, Preparation of Standard Assessment Tools, Analysis, Characteristics of a good test.

**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC-2022**  
**Category of Post: TGT**  
**Paper II – General Science Syllabus**

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**PART - I**

**I. General Knowledge and Current Affairs (Marks: 10)**

**PART - I**

**II. Perspectives in Education (Marks: 05)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), Rashtriya Aveshekar Abhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badi pelusthondi, Badi ki Vasta, Mavuru – Mana Badi, Vidyanjali, Swacha Patasala, Inspire, Kalavutsav.



#### 4. Acts / Rights:

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

5. **National Curriculum** - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.

#### 6. National Educational Policy-2020

### III. Classroom implications Educational Psychology – 05Marks

1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
2. **Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
3. **Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

#### PART - B

### IV. Content Science (40Marks) ( Class VI to Intermediate level syllabus )

#### Physical Science (Marks: 20)

1. **Units and Measurements:** Systems of Measurement, Units of Measurements, Measurement of Length, Measurement of time, Accuracy, precision of instruments errors in measurement, Significant figures, Measurement of Mass and Density, Units and Dimensions Fundamental and derived physical quantities, Systems of units, Multiples and submultiples of SI units. Dimensions Dimensional formulae and dimensional equations, dimensional constants and dimensionless quantities, principle of homogeneity of dimensions. Application of dimensional method of analysis. Conversion of one system of units into another.
2. **Motion in a Straight Line**  
Position, path length and displacement, Average velocity and average speed, Instantaneous velocity and speed, Acceleration, Kinematic equations for uniformly accelerated motion, Relative velocity, Velocity-time and position-time graphs, Kinematical Equations of motion by graphical Method, Scalars and Vectors, laws of addition of vectors, subtraction of vectors. Resolution of vectors, Motion in a plane, Motion in a plane with constant acceleration, Relative velocity in two dimensions, Projectile motion.

### 3. Laws of Motion

The law of inertia, Newton's second law of motion, Newton's third law of motion. Force – Types of Force, Free Body Diagrams. Newton's Universal Gravitation, Centre of Mass, Centre of Gravity, Stability, Applications, Equations of Motion, Motion of a body under gravity - Acceleration due to Gravity "g", Equations of Motion for a freely falling body, Equations of Motion for a body thrown upwards. Equations, Applications and problems. Universal law of gravitation, The gravitational constant, Kepler's laws, Acceleration due to gravity of the earth, Acceleration due to gravity below and above the surface of earth, Gravitational potential energy, Escape speed, Earth satellite, Energy of an orbiting satellite, Geostationary and polar satellites, Weightlessness. Work, Power, Energy, Conservation of Energy and Transformation of Energy, Renewable and Non-Renewable sources of Energy, Impulse, Law of conservation of linear momentum, Potential Energy (PE), Kinetic Energy (KE). Relation between KE and Linear momentum. Notions of work and kinetic energy: The work-energy theorem, The work-energy theorem for a variable force, The conservation of mechanical energy, The potential energy of a spring, Power, Collisions, Circular Motion, uniform circular motion, angular displacement, angular velocity, and angular acceleration, relationship between linear velocity and angular velocity, centripetal and centrifugal force, torque, couple, vector representation of torque, Vector product of two vectors, Equilibrium of a rigid body, Moment of inertia, Theorems of perpendicular and parallel axes, Dynamics of rotational motion about a fixed axis, Rolling motion. Simple harmonic motion and uniform circular motion, Velocity and acceleration in simple harmonic motion, Force law for Simple harmonic Motion, Energy in simple harmonic motion, Energy in simple harmonic motion, some systems executing Simple. Harmonic Motion, Damped simple harmonic motion, Forced oscillations and resonance Simple Pendulum, Law of conservation of energy in case of a simple pendulum. Elasticity - Elasticity and plasticity, stress and strain, Hooke's law, Moduli of elasticity. Fluid Mechanics Laws of Floatation, Principle of Buoyancy, pressure in a fluid. Stream line flow Bernoulli's theorem and its applications. Viscosity, Reynolds number, Surface tension, Simple Machines and Moments Moment of a Force, Wheel and Axle, Screw Jack, Gears, Friction, Causes of friction, advantages of friction, disadvantages of friction, methods of reducing friction, Fluid friction, Ball – Bering Principal.

### 4. Light - Ray and Optical Instruments

Light - Sources & Nature of Light, Propagation of Light, Reflection, Refraction, Laws of Reflection, Sign convention for reflection by spherical mirrors, Image formed by Plane Mirror, Spherical Mirrors (Ray diagrams), Mirror formula and Magnification, Refraction of Light through Prism and lenses (convex, concave), Refractive index, Snell's Law, Refractive index of material of prism by minimum deviation Method, Image formation by lenses (Ray Diagrams), Sign convention for spherical lenses, Lens formula, Len's Makers formula and magnification, Power of lenses, Refraction of light through prism and Glass Slab, Dispersion of light and formation of Rainbow, Scattering of light – Raman Effect. Atmospheric refraction (Twinkling of stars, Advanced sunrise and delayed sunset), the Human eye and Colourful world, Structure of Human Eye Defects of Vision, Critical angle, Total Internal Reflection - Relation between Critical angle and Refractive Index, application of total internal reflection to Optical fibers, Lasers. Newton's Corpuscular Theory, Huygens' Wave Theory, Electromagnetic spectrum. Huygens' Explanation of Reflection, Refraction, interference and diffraction of plane waves at a plane surface. Polrisation Optical Instruments-Microscope, Telescope, Formula for magnification of microscope, Astronomical and Terrestrial Telescopes.

**5. Waves:** Transverse and longitudinal waves, Displacement relation in a progressive wave, The speed of a travelling wave, The principle of superposition of waves, Reflection of waves, Beats, Doppler effect, Characteristics of Sound, Speed of sound in different media, Reflection of sound, Echoes, standing waves, nodes & antinodes, measurement of wavelength, Multiple reflection of sound, its uses, Hearing and audibility of a sound, Ultrasound, uses, Sound -Propagation of sound, Musical Instruments, Velocity of Sound in Gases, Solids & Liquids, Progressive & stationary waves. Forced Vibrations, Natural Vibrations – Resonance with examples, Loudness and pitch of sound their relation with amplitude and frequency, Audible and inaudible sounds, Noise and music, Noise pollution: sources, control and reduction.

**6. Thermal Properties of Matter**

Sources of Heat, Transmission of Heat, Heat and Temperature, Temperature and Kinetic Energy, Measurement of Temperature, Fahrenheit and Centigrade scales, Different types of thermometers, Effects of Heat Expansion of solids, liquids, gaseous, Change of state, Change of density with temperature, Examples in daily life, Applications of specific heat capacity, Evaporation, Condensation, Humidity, Dew and Fog, Boiling, Melting and Freezing. Expansion of Solids and liquids-coefficients of expansion of Solids and liquids. Anomalous expansion of water, its significance in nature. Kelvin scale of temperature, Boyle's and Charle's laws. Ideal gas equation. Heat capacity, specific heat, experimental determination of specific heat by method of mixtures. Specific heat of gas ( $C_p$  and  $C_v$ ), Calorimetry - specific heat of solids and liquids, latent heat of fusion and latent heat of vaporization, External work done by a gas during its expansion. Relation between  $C_p$  and  $C_v$  (derivation) Latent heat, Determination of latent heat of vaporization of water. Newton's law of cooling, Thermal equilibrium, Zeroth law of thermodynamics, Heat, internal energy and work, First law of thermodynamics, Specific heat capacity, Thermodynamic state variables and equation of State, Thermodynamic processes, Heat engines, Refrigerators and heat pumps, Second law of thermodynamics, Reversible and irreversible processes, Carnot engine, Carnot's theorem. Kinetic Theory, Introduction, Molecular nature of matter, Behavior of gases, Kinetic theory of an ideal gas, Law of equipartition of energy, Specific heat capacity, Mean free path.

**7. Electricity**

Electrostatics - Electrification by friction, Charges, Coulomb's Law: Permittivity of Free Space and Medium, Electric Field - Electric lines of force, their properties – Electric Flux, Electric Dipole, Dipole in a Uniform External Field, Continuous Charge Distribution, Gauss's Law, Application of Gauss's Law, Electric intensity, Electrostatic Potential, Relation between electrostatic potential and electric intensity. Capacitance and capacitors, The Parallel Plate Capacitor, Combination of Capacitors, Van de Graaff Generator, Dielectric constant, Condenser, its uses -Dielectric Strength - Effect of dielectric on capacitance of capacitors. Current electricity - Electric Current and Potential, EMF, Primary Cells-Series and Parallel connection-Electric circuits, Electrical Resistance, Ohm's Law and its verification, Electric shock. Ohmic and Non Ohmic elements, Resistance Resistances in Series and Parallel, Kirchhoff's Laws. Wheatstone Bridge, Meter Bridge, Potentiometer, Heating Effects of Electric Current-Joule's Law, Faraday's Laws of Electrolysis, Electric current - Flow of Electric charges in a metallic conductor - Drift velocity and mobility - Relation between electric current and drift velocity, Specific Resistance, Resistivity, Conductance, Electrical Energy – Power, Electrical Energy consumption.

- 8. Electromagnetism** – Magnets and their properties, Magnetic field and field lines, Oersted's Experiment, Ampere's Law, Magnetic field near a long straight wire and magnetic field at the Center of a circular coil carrying current, Field on the axis of circular coil carrying current, Force on a moving charge in a magnetic field - Force on a current carrying conductor placed in a magnetic field. Force between two long straight parallel conductors carrying current, Definition of Ampere. Fleming's Left Hand Rule. Current loop as magnetic dipole, force and Torque on Current loop in an uniform magnetic field, magnetic dipole moment of a revolving electron. The Moving Coil Galvanometer, Electromagnetic induction, Magnetic Flux, Induced EMF, Faraday's and Lenz's Law. Fleming's Right Hand Rule, Self Inductance, Mutual Inductance, Principle of Transformer, Working of Electric motor, AC, Electric Generator, DC Electric Generator, Eddy Currents, Electromagnetic Waves, Displacement Current, Electromagnetic Waves, Electromagnetic Spectrum, AC Voltage Applied to a Resistor, Representation of AC Current and Voltage by Rotating Vectors — Phasors, AC Voltage Applied to an Inductor, AC Voltage Applied to a Capacitor, AC Voltage Applied to a Series LCR Circuit, Power in AC Circuit: The Power Factor, LC Oscillations.
- 9. Modern Physics** - Alpha-particle Scattering and Rutherford's Nuclear Model of Atom, Atomic Spectra, Bohr Model of the Hydrogen Atom, The Line Spectra of the Hydrogen Atom, DE Broglie's Explanation of Bohr's Second Postulate of Quantization, Atomic Masses and Composition of Nucleus, Size of the Nucleus, Mass-Energy and Nuclear Binding Energy, Nuclear Force, Radioactivity, Nuclear Energy, Electron Emission, Photoelectric Effect, Experimental Study of Photoelectric Effect, Photoelectric Effect and Wave Theory of Light, Einstein's Photoelectric Equation: Energy Quantum of Radiation, Particle Nature of Light: The Photon, Wave Nature of Matter, Davisson and Germer Experiment, Classification of Metals, Conductors and Semiconductors, Intrinsic Semiconductor, Extrinsic Semiconductor, p-n Junction, Semiconductor diode, Application of Junction Diode as a Rectifier, Special Purpose p-n Junction Diodes, Junction Transistor, Digital Electronics and Logic Gates, Integrated Circuits, Elements of a Communication System, Basic Terminology Used in Electronic Communication Systems, Bandwidth of Signals, Bandwidth of Transmission Medium, Propagation of Electromagnetic Waves, Modulation and its Necessity, Amplitude Modulation, Production of Amplitude Modulated Wave, Detection of Amplitude Modulated Wave.
- 10. Natural Phenomena** – Lightning: Charging by rubbing, Types of charges and nature of interaction of charged bodies, Transfer of charge: electroscope as a detector of charging, Lightning: discharge, earthing, lightning conductors, Safety measures during a thunder storm. Earthquake: Earthquake, Causes of an earthquake, Seismic fault zone, Protection to damage caused by earthquakes, Measurement of intensity of earthquake, Seismograph,
- 11. Our Universe:** Constellations, Zodiac, Solar System, The Sun, Planets, Their Sizes, Masses and distance from Sun, Source of Energy, The Moon its phases surface, Stars, Meteors and Comets, Asteroids, Light year, Life on the Planet - Earth.
- 12. States Of Mater – Physical Nature Of Matter** - Composition of matter: particles (Historical introduction), Characterization of matter in terms of physical properties, Characteristics of particles of matter: space between them, attraction between them, their continuous motion, States of matter: solids, liquids and gasses, Shape, mass, volume and density of matter, Change of state of matter with temperature and pressure, Evaporation and condensation: factors effecting the rate of condensation/evaporation-surface area, temperature, humidity, wind speed. Evaporation and cooling with examples. Mixtures, type of mixtures, homogeneous and hetero generous, Solution,

components, properties, concentration, dilute and saturated Solutions, Mass / Mass percentage; Mass / volume percentage, Suspension, properties of suspensions, Colloidal solution, properties of colloids, Tyndall effect, Separating the components of a mixture, Separating components of blue / black ink, evaporation, Cream from milk by churning, centrifugation, Separating immiscible liquids, Separation by sublimation Separation by chromatography, Separation by distillation (miscible liquids), fractional distillation, Separating components of air, Obtaining pure copper sulphate from impure samples Applications of crystallization, Water purification system in water works, Physical and chemical change, Types of pure substances, elements, compounds, Comparison between mixture and compounds **Solids-** Metals and Non-metals, Physical properties of metals, luster, malleability, electrical conductivity, ductility, sonorous, heat conductors, Physical properties of non-metals Chemical properties of metals - Metals burnt in air, Metal reacts with water, Reaction with acids, Reactions with solutions of other metal salt solutions, Reactivity series, Reactions of metals and non-metals – formation of cation, anion and ionic compounds, Properties of Ionic compounds, Physical nature, Melting and boiling points, Solubility Conduction of electricity, Occurrence of metals, Extractions of metals – General Principles Of Metallurgy Occurrence and Relative Abundance of metals in earth's crust, The Metallurgy of Iron & Extraction, Protection of Metals and Prevention of Corrosion, Principles and methods of extraction - concentration, reduction by chemical and electrolytic methods and refining. Reaction with oxygen, acidic, basic nature of products, Reaction with water, Reaction with acid, Reaction with Base, Reactivity of metals in displacement reactions, Uses of metals and non-metals – **FLUIDS-** Electric Conductivity of Fluids, determination of good and poor conducting fluids, Chemical effects of electric current, Electrolytic cell: its construction and electroplating: Measurable Properties of Gases, Gas Laws, Graham's law of diffusion - Dalton's law of partial pressures, Avogadro's law and Mole Concept, Ideal behavior, empirical derivation of gas equation, ideal gas equation, Kinetic molecular theory of gases, Kinetic gas equation (No derivation) - deduction of gas laws, Air, Composition of air, Measurement of Atmospheric Pressure, Air Pollution, Volumetric Composition of Water, Hardness of Water, Drinking Water and Supply, Water Pollution, Cyclone, Pascal's Law, Archimedes' Principle, Boyle's Law, Bernoulli's Principle, Wind, Rainfall.

**13. Atomic Structure:** Matter - Its Structure, Cathode Rays, Canal Rays, Discovery of Neutron, Atomic Models - Arrangement of Sub Atomic Particles, Rutherford's model of atom and its drawbacks, Bohr's model of Hydrogen atom and its limitations, Sommerfeld's elliptical model, Schrodinger wave equation, Sub Energy Levels - Quantum Numbers, Atomic Orbitals, Relative energies of the atomic orbitals, Electronic configuration of Atoms, Some Physical Quantities of Atoms, Nature of Electromagnetic Radiation, Planck's Quantum theory. Explanation of Photo electric effect. Features of Atomic Spectra. Characteristics of Hydrogen Spectrum. Bohr's explanation of Spectral Lines, Wave-particle nature of electron, De Broglie's hypothesis, Heisenberg's uncertainty principle, Important feature of the quantum mechanical model of an atom, Electronic configurations of atoms - Explanation of stability of half filled and completely filled orbitals. Isotopes, Isobars and Isotones, Applications of Radio Isotopes.

**14. Classification of Elements:** Symbols and formulae, Radicals and their formulae, Chemical equation, Meaning, Calculations based on equations and relationship of reactants and products by weights, History of Classification of Elements, The Periodic Law, Modern Periodic Table, The significance of atomic number and electronic configuration, Classification of elements into s, p, d, f blocks and their characteristics,

Period trends in physical and chemical properties of elements, Periodic trends of elements with respect to atomic radii, ionic radii, inert gas radii, ionization energy, electron gain energy, electro negativity, Valency.

### **15. Chemical Bonding And Molecular Structure:**

Types of Bonds, Inter Molecular Attractions, Energy changes during a chemical reaction, Exothermic and Endothermic Relations, ionic bond, Electronic theory valence by Lewis and Kossel, energy changes in ionic bond formation, Properties of ionic Compounds, Covalent Bond, Multiple Covalent Bonds, Shapes of some molecules. VSEPR theory, The valence bond approach for the formation of covalent bonds, Directional nature of covalent bond, Properties of covalent bond, Different types of hybridization involving s, p and d orbitals and draw shapes of simple covalent molecules, Definition of coordinate covalent bond with examples, Description of molecular orbital theory of homo nuclear diatomic molecules. Hydrogen bonding-cause of formation of hydrogen bond- Types of hydrogen bonds-inter and intra molecular-General properties of hydrogen bonds.

**16. Chemical Kinetics, Energetics:** Chemical Calculations And Stoichiometry Chemical combination, Chemical decomposition, Chemical displacement, Chemical Double decomposition, Slow and Fast reactions, Rate of a Reaction, Factors affecting the reaction rate, Reversible and Irreversible Reactions, Law of conservation of mass, Law of definite proportions, Law of multiple proportions, Rate law, units of rate constant, Collision theory of reaction rates (elementary ideas), concepts of activation energy. Stoichiometry - Meaning of Chemical Equations, Thermochemical Equations, Problems Based on Equations, Laws of chemical combination, principles and examples, Different kinds of fuels burning with flame and without flame, Combustion of fuels, solid, liquid, gas, Ignition temperature, Matchstick – red, white phosphorous and antimony tri sulphide, ignition temperatures, Inflammable substances, Methods of controlling fire, fire extinguisher, Types of combustion, rapid, spontaneous, explosive. Flame, materials forming flames, structure of flame, Fuel, ideal fuel, fuel efficiencies, calorific value, Harmful products of burning fuels, global warming and acid rain. Molar mass, concept of equivalent weight with examples, Percentage composition of compounds and calculations of empirical and molecular formula of compounds, Oxidation number concept, Balancing of redox reactions by ion electron method and oxidation number method, Types of redox reactions, Applications of redox reactions in titrimetric quantitative analysis and redox reactions in electrode process, Numerical calculations based on equations. Equilibrium - Differences between Physical and Chemical change, Equilibrium in physical and chemical process, Dynamic nature of equilibrium, law of mass action, Equilibrium Constant, Factors affecting equilibrium.

### **17. Solutions, Acids, And Bases:**

Solutions, Types, Solubility and Factors affecting concentration of solutions, Ionization of Substances in Water, Classification of solutions - Methods of expressing concentration of solutions - Molarity, Normality, Molality, Mole Fraction, Preparation of Acids and Bases, General properties of Acids and Bases, The Strengths of Acids and Bases, Neutralisation and Heat of Neutralization, Ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionic product of water, Concept of pH, pH of some common fluids, Importance of pH in everyday life, Sensitive of plants and animals to pH, pH of soils, pH in digestive system, pH-tooth decay, Self defense by animal and plants through chemical warfare. Some naturally occurring acids. Salts - Family of salts, pH of salts, Sources of common salt, Common salt – a raw material for chemicals, NaOH, Bleaching powder, baking soda, NaHCO<sub>3</sub> uses washing soda and its uses, Salt crystals / crystallization, Plaster of Paris, Equilibrium in Physical process,

Equilibrium in chemical process - Dynamic Equilibrium, Law of chemical Equilibrium - Law of mass action and Equilibrium constant. Homogeneous Equilibria, Equilibrium constant in gaseous systems. Relationship between  $K_p$  and  $K_c$ , Heterogeneous Equilibrium. Applications of Equilibrium constant. Relationship between Equilibrium constant  $K$ , reaction quotient  $Q$  and Gibbs energy  $G$ . Factors affecting Equilibria. -Le-chatlieprinciple application to industrial synthesis of Ammonia and Sulphur trioxide. Acids, bases and salts- Arrhenius, Bronsted-Lowry and Lewis concepts of acids and bases. Ionisation of Acids and Bases -Ionisation constant of water and it's ionic product- pH scale-ionization constants of weak acids-ionization of weak bases-relation between  $K_a$  and  $K_b$ -Di and poly basic acids and di and poly acidic Bases-Factors affecting acid strength-Common ion effect in the ionization of acids and bases-Hydrolysis of salts and pH of their solutions. Buffer solutions-designing of buffer solution-Preparation of Acidic buffer Solubility Equilibrium of sparingly soluble salts. Solubility product constant Common ion effect on solubility of Ionic salts.

### **18. Hydrogen And Its Compounds**

Position of hydrogen in the periodic table. Dihydrogen-Occurance and Isotopes. Preparation of Dihydrogen, Properties of Dihydrogen, Hydrides: Ionic, covalent, and non-stoichiometric hydrides. Water: Physical properties; structure of water, ice. Chemical properties of water; hard and soft water, Temporary and permanent hardness of water, Hydrogen peroxide: Preparation; Physical properties; structure and chemical properties; storage and uses. Heavy Water, Hydrogen as a fuel.

### **19. S - Block Elements**

Alkali metals; Electronic configurations; Atomic and Ionic radii; Ionization enthalpy; Hydration enthalpy; Physical properties; Chemical properties; Uses, General characteristics of the compounds of the alkali, metals: Oxides; Halides; Salts of Oxy Acids. Anomalous properties of Lithium: Differences and similarities with other alkali metals. Diagonal relationship; similarities between Lithium and Magnesium. Some important compounds of Sodium: Sodium Carbonate; Sodium Chloride; Sodium Hydroxide; Sodium hydrogen carbonate. Biological importance of Sodium and Potassium. Alkaline earth elements; Electronic configuration; Ionization enthalpy; Hydration enthalpy; Physical properties, Chemical properties; Uses. General characteristics of compounds of the Alkaline Earth Metals: Oxides, hydroxides, halides, salts of Oxyacids (Carbonates; Sulphates and Nitrates). Anomalous behavior of Beryllium; its diagonal relationship with Aluminum. Some important compounds of calcium: Preparation and uses of Calcium Oxide ; Calcium Hydroxide; Calcium Carbonate;Plaster of Paris; Cement. Biological importance of Calcium and Magnesium.

### **20. P - Block Elements**

General introduction - Electronic configuration, Atomic radii, Ionization enthalpy, Electro negativity; Physical & Chemical properties. Important trends and anomalous properties of boron. Some important compounds of boron - Borax, Ortho boric acid, diborane. Uses of boron, aluminium and their compounds. General introduction - Electronic configuration, Atomic radii, Ionization enthalpy, Electro negativity; Physical & Chemical properties. Important trends and anomalous properties of carbon. Allotropes of carbon. Uses of carbon. Some important compounds of carbon and silicon – carbon monoxide, carbon dioxide, Silica, silicones, silicates and zeolites.

## 21. Organic Chemistry

Allotropic forms of Carbon, Oxides of Carbon, Uniqueness of Carbon and Source of Carbon Compounds, Anomalous behavior of first element namely Carbon, Carbon-catenation, allotropic forms, physical and chemical properties and uses, Bonding in carbon, Covalent bond, Catenation, Saturated and unsaturated carbon compounds, Chains, branches and rings, Bonding of carbon with other elements, Functional groups in carbon compounds, Homologous series. Nomenclature of carbon compounds, Chemical properties of carbon compounds, Combustion, Blue flame, Sooty flame, Oxidation, Addition reaction, Substitution reaction, Important carbon compounds, Ethanol, Ethanoic acid, properties of ethanol – General properties, reaction of ethanol with sodium, reaction with hot concentrated sulphuric acid, Properties of ethanoic acid – General properties. Esterification reaction, Reaction with a base, sodium hydroxide, sodium carbonate and sodium hydrogen carbonate, Soaps and detergents, Micelles. . Classification and nomenclature, Nature of C-X bond, Methods of preparation : Alkyl halides and aryl halides-from alcohols, from hydrocarbons (a)by free radical halogenation -(b) by electrophilic substitution (c) by replacement of diazonium group(Sand-Meyer reaction) (d) by the addition of hydrogen halides and halogens to alkenes-by halogen exchange(Finkelstein reaction), Physical properties-melting and boiling points,density and solubility, Chemical reactions, Reactions of haloalkanes (i)Nucleophilic substitution reactions (a)  $\text{S}_{\text{N}}^2$  mechanism (b)  $\text{S}_{\text{N}}^1$  mechanism (c) stereo chemical aspects of nucleophilic substitution reactions -optical activity (ii) Elimination reactions (iii) Reaction with metals-Reactions of haloarenes: (i) Nucleophilic substitution (ii)Electrophilic substitution and (iii) Reaction with metals, Polyhalogen compounds: Uses and environmental effects of dichloro methane, trichloromethane, tri iodo methane, tetrachloro methane, freons and DDT. Alcohols,phenols and ethers –classification, Nomenclature: (a)Alcohols, (b)phenols and (c)ethers, Structures of hydroxy and ether functional groups, Methods of preparation: Alcohols from alkenes and carbonyl compounds- Phenols from haloarenes, benzene sulphonic acid, diazonium salts, cumene, Physical properties of alcohols and phenols, Chemical reactions of alcohols and phenols (i) Reactions involving cleavage of O-H bond-Acidity of alcohols and phenols, esterification (ii) Reactions involving cleavage of C-O bond-reactions with HX,  $\text{PX}_3$ , dehydration and oxidation (iii) Reactions of phenols-electrophilic aromatic substitution, Kolbe's reaction, Reimer - Tiemann reaction, reaction with zinc dust, oxidation, Commercially important alcohols (methanol, ethanol), Ethers-Methods of preparation: By dehydration of alcohols, Williamson synthesis- Physical properties-Chemical reactions: Cleavage of C-O bond and electrophilic substitution of aromatic ethers. Nomenclature and structure of carbonyl group, Preparation of aldehydes and ketones-(1) by oxidation of alcohols (2) by dehydrogenation of alcohols (3) from hydrocarbons -Preparation of aldehydes (1) from acyl chlorides (2) from nitriles and esters(3)from hydrocarbons-Preparation of ketones(1) from acyl chlorides (2)from nitriles (3)from benzene or substituted benzenes, Physical properties of aldehydes and ketones, Chemical reactions of aldehydes and ketones-nucleophilic addition, reduction, oxidation, reactions due to -Hydrogen and other reactions (Cannizzaro reaction,electrophilic substitution reaction), Uses of aldehydes and ketones, CARBOXYLIC ACIDS, Nomenclature and structure of carboxylgroup, Methods of preparation of carboxylic acids- (1)from primary alcohols and aldehydes (2) from alkylbenzenes(3)from nitriles and amides (4)from Grignard reagents (5) from acyl halides and anhydrides (6) from esters, Physical properties, Chemical reactions: (i) Reactions involving cleavage of OH bond-acidity, reactions with metals and alkalis



(ii) Reactions involving cleavage of C-OH bond-formation of anhydride, reactions with  $\text{PCl}_5$ ,  $\text{PCl}_3$ ,  $\text{SOCl}_2$ , esterification and reaction with ammonia (iii) Reactions involving  $-\text{COOH}$  group-reduction, decarboxylation (iv) Substitution reactions in the hydrocarbon part - halogenation and ring substitution, Uses of carboxylic acids. Structure of amines, Classification, Nomenclature, Preparation of amines:reduction of nitro compounds, ammonolysis of alkyl halides, reduction of nitriles, reduction of amides, Gabriel phthalimide synthesis and Hoffmann bromamide degradation reaction. Physical properties, Chemical reactions:basic character of amines, alkylation, acylation, carbyl amine reaction, reaction with nitrous acid, reaction with aryl sulphonyl chloride, electrophilic substitution of aromatic amines-bromination, nitration and sulphonation. DIAZONIUM SALTS - Methods of preparation of diazonium salts (by diazotization), Physical properties. Chemical reactions: Reactions involving CYANIDES AND ISOCYANIDES - Structure and nomenclature of cyanides and isocyanides, Preparation, physical properties and chemical reactions of cyanides and isocyanides

## 22. Polymers:

Classification of Polymers -Classification based on source, structure, mode of polymerization, molecular forces and growth polymerization. Types of polymerization reactions-addition polymerization or chain growth polymerization-ionic polymerization, free radical mechanism-preparation of addition polymers-polythene, teflon and polyacrylonitrile-condensation polymerization or step growth polymerization-polyamides-preparation of Nylon 6,6 and nylon 6-poly esters- erylene - bakelite, melamine, formaldehyde polymer- copolymerization-Rubber-natural rubber-vulcanisation of rubber-Synthetic rubbers-preparation of neoprene and buna-N. Molecular mass of polymers-number average and weight average molecular masses-poly dispersity index (PDI). Biodegradable polymers-PHBV, Nylon 2-nylon 6. Polymers of commercial importance-poly propene, poly styrene, poly vinyl chloride(PVC), urea-formaldehyde resin, glyptal, bakelite- their monomers, structures and uses. Natural and artificial fibres, Synthetic fibre, Types of synthetic fibres - Rayon, Nylon, Polyester and acrylic, Characteristics of synthetic fibres, Plastics, polythene, Thermo plastics, Thermo setting plastic, Plastics as materials of choice: Non-reactive, light, strong and durable and poor conducting plastics, Plastics and environment – Bio degradable, non-bio degradable. Carbohydrates - Classification of carbohydrates-Monosaccharides: preparation of glucose from sucrose and starch- Properties and structure of glucose- D,L and (+), (-) configurations of glucose- Structure of fructose Disaccharides: Sucrose- preparation, structure-Invert sugar- Structures of maltose and lactose-Polysaccharides: Structures of starch cellulose and glycogen- Importance of carbohydrates. Aminoacids: Natural aminoacids-classification of aminoacids -structures and D and L forms-Zwitter ions Proteins: Structures, classification, fibrous and globular- primary, secondary, tertiary and quaternary structures of proteins- Denaturation of proteins. Enzymes: Enzymes, mechanism of enzyme action. Vitamins: Explanation-names- classification of vitamins - sources of vitamins-deficiency diseases of different types of vitamins. Nucleic acids: chemical composition of nucleic acids ,structures of nucleic acids, DNA finger printing biological functions of nucleic acids. Hormones: Definition, different types of hormones, their production, biological activity, diseases due to their abnormal activities.

## 23. Chemistry In Everyday Life

Drugs and their classification: (a) Classification of drugs on the basis of pharmacological effect(b) Classification of drugs on the basis of drug action (c) Classification of drugs on the basis of chemical structure (d) Classification of drugs on

the basis of molecular targets. Drug-Target interaction-Enzymes as drug targets(a) Catalytic action of enzymes (b) Drug-enzyme interaction Receptors as drug targets. Therapeutic action of different classes of drugs: antacids, antihistamines, neurologically active drugs: tranquilizers, analgesics-non-narcotic,narcotic analgesics, antimicrobials-antibiotics,antiseptics and disinfectants- antifertility drugs. Chemicals in food-artificial sweetening agents, food preservatives, antioxidants in food. Cleansing agents-soaps and synthetic detergents.

#### **24. Environmental Chemistry:**

Sources of energy, Conventional sources of energy, Fossil fuels, Petroleum formation, refining of petroleum, constituents of petroleum, Natural gas, Petrochemicals, Thermal power plant, Hydro power plants, Improvements in the technology for using conventional sources of energy, Bio-Mass, Wind energy, Alternative or non-conventional sources of energy, Solar energy, Energy from sea, Tidal energy, Wave energy, Ocean thermal energy, Geothermal energy, Nuclear energy, Environmental consequences of production and consumption of energy, Sustainability of energy sources. Pollution: Air, Water and Soil Pollution, Oxides of Carbon, Carbon Monoxide, Oxides of nitrogen and Sulphur, Chlorofluro carbons, Chemical reactions in atmosphere, smogs, major atmospheric pollutants, acid rain, Ozone and its reactions, effects of depletion of ozone layer, Green house effect and global warming, Pollution due to industrial wastes, Green chemistry as an alternative tool for reducing pollution with two examples.

#### **Biology Content (Marks: 20)**

1. **Biological Sciences:** Importance and Human Welfare, Branches of Biology, Biologists.
2. **Living World:** Life and its Characteristics, Classification of Living Organisms, Nomenclature, different types of classification. Need for classification, Biological classification levels and Hierarchy of classification, species concept. Animal diversity, invertebrates, Chordates.
3. **Microbial World:** Virus, Bacteria, Algae, Fungi and Protozoan, Useful and Harmful Micro-organisms. Immunity, vaccination, Immunological disorders. Infections, life style diseases.
4. **Cell & Tissues:** Cell – Structure cell theory , cell organelles and their functions, differences between prokaryotic and Eukaryotic cells, plant cell and animal cell, cell cycle, cell division , Mitosis and Meiosis, tissues, structure, functions and types of plant and Animal tissues, Cancer biology, stem cells. Transportation of materials through the cells. Internal organization of plants, histology - anatomy of flowering plants.
5. **Plant World :** Morphology of a Typical Plant - Root, Stem, Leaf, Flower, Inflorescence, Fruit - their Structure, Types and Functions, Parts of a Flower, Seed dispersal Modifications of Root, Stem and Leaf, Photosynthesis, Transpiration, Transportation in plants (Ascent of Sap), Respiration, Excretion and Reproduction in Plants, Plant Hormones, food from the plants. Economic importance of Plants, Wild and Cultivated Plants, Agricultural Operations, Crop diseases and Control measures, Improvement in Crop yield, Storage, Preservation and Protection of Food and Plant Products. Single cell proteins (SCP), plant enzymes, mineral nutrition, plant growth and development.

6. **Animal World:** Organs and Organ Systems including man - Their Structure and Functions Digestive, Respiratory in human, type studies of the animals. Circulatory, Immunology, Excretory, Locomotion in protozoa and humans - Muscular, Skeletal Systems, Nervous, Control and Coordination and Reproductive: Sexual, asexual fission, syngamy, conjugation. Reproductive health – Birth control methods, Sense Organs: Structure and Functions of Eye, Ear, Nose, Tongue and Skin. Nutrition in man - Nutrients and their functions, Balanced Diet, Deficiency diseases, Health - Tropical diseases (Viral, Bacterial, Protozoan, Helminth, Arthropod), Skin diseases (Fungal), Blindness in man: Causes, Prevention and Control, Health agencies, First Aid - Bites: Insect, Scorpion and Snakes, Fractures, Accidents, Life skills, Wild and Domesticated animals, Economic Importance of Animals, Animal Husbandry - Pisciculture, Sericulture, Poultry, Breeding of Cows and Buffaloes, animal behavior.
7. **Heredity and Evolution:** Terms, Mendel laws, Sex determination in humans, Inheritance of Blood Groups, Erythroblastosis foetalis, Theories of Evolution, Speciation, Evidences of Evolution, Human Evolution, sex linkage, genetic disorders, syndromes, human genome project, evolutionary forces, DNA and finger printing.
8. **Our Environment – Ecology:** Abiotic and Biotic factors of Ecosystems, Ecosystem - Types, components, adaptations, Food chains, Food web and Ecological pyramids, Natural Resources  
 - Type of water managements, soil waste land management, forests, sustainable development, fossil fuels and bio fuels, 4Rs, bio-geo-chemical cycles, pollution, air, water, soil, global environmental issues – global warming – (Green House Effect), acid rains and depletion of Ozone layer; Population - interaction in Eco-system, plant ecology.
9. **Recent Trends in Biology:** Hybridization, Gene - Genetic material, DNA, RNA, Genetic Engineering, Gene Bank, Gene Therapy, Tissue Culture and Bio-Technology – applications. Transgenic animals and plants, cloning, molecular diagnosis, bio medical technology, bio molecules, molecular biology.
10. **Biodiversity – Conservation:** Biodiversity – levels of bio diversity, conservation, wild life, sanctuaries, national parks in India, importance of species, diversity to the Ecosystem.

## V. Methodology (Marks: 20)

1. The Nature of Science: Nature and scope of science, Science, ideology and Society, Structure of Science (a) Substantive structure - Empirical knowledge, Theoretical Knowledge - (Facts, Concepts, hypothesis, theory, Principle Law), (b) Syntactic Structure of Science - Scientific inquiry, Processes of Science, Attitudes of inquiry
2. The History and Development of Science: A brief introduction to oriental and western science, Contribution of the following Scientists in the Development of Science: Aryabhatta, Bhaskara Charya, Aristotle, Copernicus, Newton, Einstein, C.V.Raman, Various organizations working for the development of science in India
3. Aims and Values of teaching Sciences: Aims of teaching Sciences, Values of teaching Science, Correlation of Science with other subjects
4. Objectives of teaching Sciences: Meaning and importance of objectives, Bloom's Taxonomy of Educational objectives, Specific / Behavioral objectives / (Instructional objectives), Critique on Bloom's Taxonomy

5. Approaches and Methods of teaching Sciences: Inductive and Deductive Approaches, Micro Teaching, Team Teaching, Lecture Method, Lecture cum Demonstration Method, Historical Method, Heuristic Method, Project Method, Laboratory method, Problem Solving Method, Scientific Method, Multimedia Approach in Teaching Learning process, Programmed Learning, CAI and CAL
6. Planning for effective instruction in Science: Year Plan, Unit Plan, Lesson Plan, Learning experience, characteristics, classification, source and relevance.
7. Teaching Learning Material (TLM): Characteristics and Importance of TLM, Classification and Types of TLM, Hardware and Software in TLM, TLM-Principles to be followed, Edgar Dale's cone of learning experience.
8. Science laboratories: Importance of Practical work in science, Planning of Science laboratories, Procurement, care and maintenance of laboratory equipment, Registers, Management of safety and science kits, Development of improvised Apparatus.
9. Physical Science Curriculum: Principles of Curriculum Construction, Defects in the existing school science curriculum, Qualities of a good Science Text Book.
10. Non-formal Science Education: Science Clubs, Science Fairs - purposes, levels, organization, advantages, Science Library, Role of NGOs and State in popularizing Science
11. Evaluation: Concept and Process of Evaluation, Tools of Evaluation, Preparation of Scholastic Achievement Test (SAT), Analysis and interpretation of Scores.



**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC-2022**  
**Category of Post: TGT**  
**Paper II – SOCIAL STUDIES Syllabus**

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**PART - I**

**I. General Knowledge And Current Affairs (Marks: 10)**

**PART - II**

**II. Perspectives In Education (Marks: 05)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, SarvaSikshaAbhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), RashtriyaMadhyamikaSikshaAbhiyan(RMSA), RashtriyaAveshekarAbhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.

- Current Trends in Education – Badipelusthondi, BadikiVasta, Mavuru – ManaBadi, Vidyanjali, SwachaPatasala, Inspire, Kalavutsav.

#### 4. Acts / Rights:

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

5. **National Curriculum** - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.

#### 6. National Educational Policy-2020

### PART - III

#### III. Classroom implications of Educational Psychology – 05Marks

1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
2. **Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
3. **Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

### PART - IV

#### IV. Content: (40 Marks)

#### Classes VI – X Syllabus:) ( Class VI to Intermediate level syllabus )

##### Theme - I: Diversity on the Earth

Reading, Making and Analysis of Maps -different types of maps - directions -scale - conventional symbols use in maps-measuring heights , distances - Contour Lines- Representation of relief features on maps- uses of maps- past and present-Maps Down the Ages-reading of thematic maps-atlas-globe-a model -the earth grid system- Using an atlas to find latitude and longitude of places, time.

Our Universe, the Sun and the Earth –energy form sun- temperature - The evolution of the Earth- earth movements – seasons- regions on earth-condition -Movements of the Earth’s-crust - Internal Structure of the Earth- Realms of the earth

Lithosphere- ‘first order’ landforms- oceans and continents-diverse features -Second Order landforms-mountains, plains and plateaus- diverse people living in different kinds of landforms in India and Andhra Pradesh -plate tectonics-Volcanoes-earth quakes –disaster management- Mining and minerals- new trends in mining and minerals.- renewable and non-renewable –Indian relief features –location-geological background-major relief divisions in India-and Andhra Pradesh

Hydrosphere- Hydrological cycle-water sources-oceans-relief of the oceans- salty-movements -oceans as resource waves,tides,currents-ocean as resource –Indian, Andhra Pradesh river and water resources –ground water-tanks-recharging ground water-floods- Rational and equitable Use of water-Andhra Pradesh water , land and trees protection act .

Atmosphere- structure of atmosphere Pressure Belts and Planetary Winds- Carioles effect-winds- weather and climate –factors which influence weather and climate –seasons in india-types of rainfall- Global Warming and Climate Change-anthropological global warming - IPCC- Impact of climate change on India-

Biosphere- Natural vegetation- different kinds of forests- human society and environment-pollution and effects-depletion of resources- using and protesting forests

### **Theme - II: Production Exchange and Livelihoods**

From Gathering Food to Growing food – The Earliest People - Agriculture in Our Times - Trade in Agricultural Produce -Trade in Agricultural Produce – agricultural in India, Andhra Pradesh-types of farming-cropping season-crops-importance of agriculture –green revolution –effects- dry land agriculture –Food security – nutrition status –PDS-sustainable development and equity -handicrafts and handlooms- industrial revolution- beginning of industrial revolution- Sources of Energy and Industrial Development-urbanisation and slums-production in a factory Livelihood and Struggles Urban Workers - Minerals and Mining - Impact of Technology on Livelihoods –technology changes in agricultural, industrial ,service sectors -importance of transport system–transport system in India, traffic education – Andhra Pradesh- money and banking- finance literacy-credits and finance system- prices and cost of living - Role of government in regulating prices-The Government Budget and Taxation –direct and indirect taxes-industries in India-new policies for industries -service activates in India -growth and development-comparing of different countries and states-sectors of economy-employment- organized and unorganized sectors –employment in India-population –people and settlement-urbanisation in India , urbanisation problems-people and migration –types of migrations –village economy –Globalization –factors –impact-fair globalization-other issues.

### **Theme -III: Political Systems and Governance**

Emergence of Kingdoms and Republics – Mahajanapadas- First Empires – Mouryan empire- Ashoka –kingdoms and empires in the Deccan-New Kings and Kingdoms(between 7 th and 12 th centuries )-Mahamud Ghazini – the Cholas and other- The Kakatiyas - Emergence of a Regional Kingdom- The Kings of Vijayanagara-Srikrishna Devaraya-Delhi Sultanate-Mughal Empire- Establishment of British Empire in India- the revolt 1857-after revolt-British rule in India- Landlords and Tenants under the British and the Nizam - National Movement - The Early Phase 1885-1919 -National Movement - The Last Phase 1919-1947 –national movement in India – partition – integration of states- Independent India 1947-77 – state reorganisation-social and economic change-foreign policy – wars –emergency- independent India 1977-2000

Changing cultural tradition in Europe- the ancient , medieval world in Europe-renaissance-humanism-realism-the new concept of human beings-debates within Christianity –Beginning of the modern science-exploration of sea routes –democratic and nationalist revolution in 17<sup>th</sup>,18<sup>th</sup> and 19<sup>th</sup> centuries – the glorious revolution- American independence – Frenchrevolution- rise of nationalism in Europe-the revolts 1830-1848 –Germany unification-unification of Italy-industrialisation and social change –social protest movements – Buddhism-socialism-women movements – colonialism in Latin America , Asia , Africa-impact of colonialism in India- adivasi revolts-the Britishgovernment’s industrial policy-labourers’ struggles-the world between 1900-1950-world war I and world war II- causes – the treaty of Versailles – the league of nations-consequences of the world war-Russian socialist revolution-the great depression- Nazism –post war world and India – UNO-Cold war-non alignment movement- the growth of nationalism in the middle east-peace movement and collapse of USSR-National liberation movements in the colonies .

Democratic Government - Village Panchayats - Local Self – Government in Urban Areas – Making of Laws in the State Assembly-Implementation of Laws in the District - The Indian Constitution -the making of independent India ‘s constitution –Parliamentary system – federalism- the constitution today- Elections system in India – electoral literacy- Parliament and Central Government - Law and Justice –Supreme court –high court- other courts – worldly expansion of democracy- the democracy an evolving idea.

### **Theme -IV: Social Organisation and Inequities**

Diversity in Our Society - Towards Gender Equality –caste discrimination and the struggle for equalities –livelihood and struggles of Urban workers –workers rights –abolishment of zamindari system-poverty-Rights –Human rights and fundamental rights- Women rights , protection acts – children rights – RTI-RTE-legal service authority- LokAdalat –consumer rights - social movements in our time

### **Theme - V: Religion and Society**

Religion and Society in Early Times – hunter- gatherers-early farmers and herders-Indus valley civilisation –Vedas- Jainism ,Buddhism-folk religion-bhakti- siddhas, yogis.- Sufism-



Kabir – Gurunank-Devotion and Love towards God –Hindu religion-Bhakti movement-Christianity-Islam- the belief in supreme god-social and religious reform movements-Christian missionaries and oriental scholars-Bramhasamaj- AryaSamaj-Swami Vivekananda –reforms and education among Muslims –social reformers in Andhra Pradesh- social reforms and caste system-Narayana Guru- JyothiraoPhule – Dr.BR.Ambedker-understanding Secularism-

### **Theme -VI: Culture and Communication**

Language, Writing and Great Books - Sculptures and Buildings –Performing Arts and Artistes in Modern times-burrakatha – tholubommatala –bharatanatyam-Film and print media-role of media in freedom movement- sports Nationalism –other games and their status.

### **Intermediate Syllabus:**

#### **Geography:**

General Geography-Definition and scope of Geography – Branches of Geography-Geography as an integrating Discipline and as Special Science with physical, biological and social sciences.

Solar System-Origin and Evolution of solar system-Rotation and Revolution of the Earth and their effects-Latitudes and Longitudes-Standard Time and International Date line.

The Earth - Interior of the Earth-Wegner’s theory of continental drift -Major Rock types and their characteristics.

Geomorphology -Major landforms: Mountains, Plateaus and Plains-Geomorphic Process: Weathering - Physical and Chemical Weathering-Landforms associated with wind and river – Erosional and depositional.

Climatology -Climate: Elements of weather and climate-Atmosphere: Composition and structure of atmosphere -Insolation: Insolation and Heat Budget of the Planet Earth-Temperature: Factors influencing Temperature, Vertical and horizontal distribution of temperature Pressure- Global pressure belts WindsPlanetary winds, Seasonal and Local winds-Precipitation: Forms and types of rain fall (Convectional, Orographic and Cyclonic rain fall).

Bio geography -Biomes of the world- Equatorial, Tropical and Temperate zones -Biodiversity and Conservation -Concept of Ecosystem and Ecological Balance- Oceanography, Hydrology and Natural hazards

Oceanography-Divisions of the Ocean floor- Continental shelf, Continental slope, Deep Sea plains and Ocean deeps-Ocean Temperatures- Vertical and horizontal distribution-Ocean Salinity Definition, vertical and horizontal distribution-Oceanic Movements: Waves, Tides and Currents, (Currents of Atlantic, Pacific and Indian Ocean )

Hydrology-Elements of Hydrological cycle: Precipitation, evaporation, evaporation-transpiration, run off, infiltration and recharge -Hydrological Cycle.

Natural Hazards-Causes and Spatial distribution of floods, droughts, cyclones, Tsunamis, Earthquakes and landslidesGlobal Warming and its consequences-Disaster Management in India-Human Geography: Definition, Content and scope- Man and Environment: Definition, Content, Classification of environment-Environmental impact World Population: Growth, Factors influencing, density and distribution

Human activities - Primary, Secondary and tertiary activities-Resources - Definition, Classification and Conservation-Agriculture -Definition, Types, food crops (Rice and wheat)

Nonfood crops (Cotton, Sugarcane) and Plantation crops-(Rubber, tea and coffee) their Significance, Conditions - for cultivation, production and distribution.

Definition and Classification (Metallic - Iron), nonMetallic – bauxite and (fuel minerals - coal and petroleum) Industries - Location factors, types of industries - Agro – based (Cotton textiles) Forest based (Paper mills) -Mineral based (Iron and steel) - Chemical based (Fertilizers)- Transportation -Road ways, Railways, Water ways and Air ways - Rail ways- Intensive net work rail way, Regional rail-ways and Trans continental railways - Water ways- Major sea ports: London, San Francisco-Reo De Janeiro, Cape Town, Kolkata and Sydney- Major Air ports- Tokyo, Paris, Chicago, Bogota and -Wellington

Physical features of India - Major features - Northern mountains, Indo – Gangetic-plains, Peninsular plateau of India and coastal plains- Major rivers of India - Perennial rivers- Indus, Ganges and Brahmaputra-Non Perennial rivers- Narmada, Tapi, Mahanadi, -Godavari, Krishna, Pennar and Cauvery - Climate of India - Cold weather season: Temperature Rainfall & Pressure distribution Hot weather season- Temperature, Rainfall & Pressure distribution South west monsoon season- Temperature, Rainfall & Pressure distribution North east monsoon season: Temperature, Rainfall & Pressure distribution-Natural vegetation of India- Types of vegetation based on rainfall and their-distribution. Evergreen forest, deciduous forest, scrub -forest,& Thorny forest -Soils - Definition, factors for formation, types and - their distribution.

Population- Growth trends from 1901 to 2001, Distribution based-on density, problems of high population- Irrigation-Types of irrigation: canals, wells and tanks. Major -multipurpose projects. Bakranagal, Hirakud, -Damodarvalley corporation and Nagarjuna Sagar- Agriculture: Cropped area, production and distribution of -selected crops: Rice, Wheat, Millets, Coffee, Tea, Sugarcane, Cotton, Jute and tobacco; Problems of Indian agriculture.

Minerals- Production and distribution of coal, petroleum, iron, mica and manganese, bauxite. Industries- Location factors growth and distribution of iron and steel, cotton textile and ship building industries- Transportation-Means of Transport – Road ways, Rail ways, Water - ways and Air ways; Major ports of India – Mumbai, -Cochin, Kandla, Kolkata, Visakhapatnam and Chennai.

Geography of Andhra Pradesh: Location, Physiography and Climate, Population.

### **History:**

What is History: Definition - Scope – Sources – Historiography – Relationship with other Social Sciences – Impact of Geography on history - Relevance of History.

Ancient Civilizations and Culture : Pre Harappan Cultures - Harappan Civilization – Script, town planning, society, economy and culture - Vedic age and Post Vedic Culture.

Early States, Empires and Economy : Early States – 16 Mahajanapadas - Rise of Magadha – Economy and Agriculture – urbanization.

Early Societies, and religious movements: Early Societies – Social differences – Religious movements – Jainism – Buddhism and other sects Ajivikas and Lokayats.

Polity, Economy, Society and Culture between 3rd to 7th Century A.D. :Mauryas - Kushanas – Guptas – Pushyabhuties – Origin of feudalism – Polity, Society, Economy and Culture.

Deccan and South India up to 8th A.D: Sangam age – Satavahanas – Pallavas – Chalukyas – Rastrakutas – Cholas – Polity, Society, Economy and culture.

Age of Delhi Sultanate: Sources/Travellers Accounts - Arab Invasions – Turkish invasions – Delhi Sultanate – Polity, Economy, Society and Culture.

Age of Mughals: Chronicles/Sources – Mughal rule – Babur, Humayun, Shershah, Akbar, Jahangir, ShahJahan and Aurangazeb - Polity, Economy, Society and culture - Disintegration - Maratas, Sikhs.

Bhakti and Sufi Traditions 8 A.D. 16 Century A.D: Prevailing Religious Traditions and beliefs in the Society – Bhakti Saints and their Preachings – Sufism – Main features and their impact.

Deccan and South India 8th A.D – 16 the A.D : Sources - Kakatiyas – Vijyanagara – Bahamanis – Qutbshahis and Asafjahis – a brief survey.

India under the Colonial Rule : Sources - Portuguese – Dutch – French – English East India Company – Era of Governor Generals and their Polices – Reforms of Viceroy – 1857 Mutiny.

Indian National Movement: Background to National Movement, Socio-religious movement – rise of Nationalism – Vandemataram movement – Home rule movement – Emergence of Mahatma Gandhi and leadership – Revolutionary movement, Subhash Chandra Bose – Poona Pact Quit India movement – Partition of India – Emergence of Independent India.

The Modern World- Beginning of Modern Age, Renaissance, Development in Science, The Reformation Movement, Rise of Nation States, Struggle against Absolute Monarchies - Capitalism and Industrial Revolution -The Revolutionary Movements -The Glorious Revolution, The American war of Independence, The French Revolution of 1789 - .Nationalist Movements: Rise and fall of Napoleon, French Revolution of 1830 and the 1848 Revolt, Unification of Germany and Italy, Socialist Movements – Rise of Working class, Paris Commune of 1871

Imperialism: Factors in the rise of Imperialism, Forms and Methods of Imperialism, Scramble for Africa and Asia

Contemporary World: The First World war, League of Nations, The Russian Revolution of 1905 and 1917 -The World upto World War II: Rise of Fascism and Nazism, Militarism in Japan, U.S.A. and U.S.S.R. after World War I, Turkey after World War I, Failure of League of Nations, Spanish Civil war, World war II, The Nationalist Movements in Asia and Africa, Emergence of Latin America

The World after World War II: Formation of Military Blocks, Role of independent Nations of Asia and Africa in the World Affairs, Non-Alignment Movement, Role of UNO in preserving World Peace, Problems of Disarmament and Nuclear Weapons, Prominent Personalities of the World.

### Civics:

Scope and Significance of political Science - Introduction to Civics and Political Science, Origin and Evolution, Meaning, Definitions, What do we study? Why do we study?

State - State – Meaning, Definitions, Elements, Relation of state with other Institutions – Society, Association, Government.

Nationalism - Nation, Nationality, Nationalism, Factors contributing for Nationality, Is India a Nation? Meaning, Forms (Traditional and modern)

law -Meaning, Definitions, Classification, Law and morality, Rule of Law. Liberty and Equality – Meaning, Definitions, Types, Safeguards, Liberty – Equality.

Rights and Responsibilities– Meaning, Definitions, functions Forms, Relationship between Rights and Responsibilities, Human Rights

Justice - Justice – Meaning, Forms of Justice, Social Justice.

Citizenship - Meaning, Definitions, Methods of Acquiring, Citizen – Alien , Loss of Citizenship, Hindrances to Good Citizenship, Universal Citizenship

Democracy- Meaning, Definitions, features, types, merits, devices, future

Secularism -Meaning, Secular State, Western Model, Indian Model, Why India was made a Secular State? Criticism of Indian Secularism

Constitution– Meaning, Definitions, features, Classification

Government - Unitary, Federal, Parliamentary, Presidential, Theory of Separation of Powers, Organs of Government

Indian Constitution: Indian National Movement- Government of India Acts – 1909, 1919 & 1935-

Salient features of Indian Constitution

Fundamental Rights & Directive Principles of State Policy- Fundamental Rights- Directive Principles of state Policy- Fundamental Duties

Union Government- Union Executive – President of India - Vice – President of India - Prime Minister & Council of Ministers

Indian Parliament - Lok Sabha-Composition – Powers and functions- Rajya Sabha: Composition – Powers and functions

Parliamentary Committees- Public Accounts Committee – Estimates -Committee – Committee on Public Undertakings

Union Judiciary - Supreme Court of India – Composition- Powers and Functions of Supreme Court -of India - Judicial Review

State Government- State Executive – Governor- Powers and Functions- Chief Minister - Powers and Functions- Council of Ministers

State Legislature-Legislative Assembly- Composition – Powers and Functions- Legislative Council-Composition – Powers and Functions - Legislative Committees: Public Accounts Committee – Estimates-Committee and Ethics Committee

State Judiciary-High Court – Composition- Powers and Functions of High Court- District Courts: Composition – Powers and Functions.

Union – State Relations - Legislative Relations-Administrative Relations- Financial Relations

Local Government-Rural Local Government - Panchayati Raj Institutions – 73rd Constitution Amendment Act- Urban Local Government: Municipalities - Municipal Corporation – 74th Constitution Amendment Act- District Collector : Role in Local Governments

India's Foreign Policy - Determinants of Foreign Policy- Basic features of India's Foreign Policy-

South Asian Association for Regional Cooperation (SAARC)

United Nation Organization (UNO)-Origin of UNO-Principal Organs of UNO- Achievements and failures of UNO

Contemporary Trends and Issues- Globalization- Terrorism-Corruption.

### **Economics:**

Origin and meaning of Economics - Definitions of Economics; Adam Smith, Alfred Marshall, Lionel Robbins, Paul Samuelson, & Jacob Viner- Concept of Economics – Micro & Macro Economics Deductive and Inductive Method, Static and Dynamic Analysis, Positive and Normative Economics. Goods: (Free, Economic, Consumer, Producer, and Intermediary), Wealth, Income, Utility, Value, Price, wants and welfare.

Theory of Consumption - Cardinal and Ordinal Utility, the law of Diminishing Marginal Utility – Limitations – Importance; law of Equi-Marginal Utility Limitations and – Importance of the Law, Indifference Curve Analysis – Properties and Consumer's Equilibrium.

Theory of Demand - Meaning – Demand Function – Determinants of Demand, Demand Schedule – Demand Curve, Law of Demand, Exceptions to Law of Demand - Causes for the downward slope of the demand curve, Types of Demand – Price Demand, Income Demand, and Cross Demand- Elasticity of Demand – Meaning and Types – Price Elasticity, and Income Elasticity and Cross Elasticity – Price Elasticity-Types; Measurement of Price

Elasticity of Demand- Point Method. Arc Method, Total Outlay Method. Determinants of Elasticity of Demand; Importance of Elasticity of Demand.

Theory of Production - Meaning - Production Function – Factors of Production; Short-run and Long-run Production Function; Law of variable proportions - Law of returns to scale; Economies of Scale - Internal and External- Supply – Supply Function - Determinants of Supply — Law of Supply- Cost Analysis – Basic Concepts of Costs- (Money, Real, Opportunity, Fixed and Variable, Total, Average and Marginal costs)- Revenue Analysis – Revenue under perfect and imperfect competition.

Theory of Value - Meaning and Classification of Markets – Perfect competition – features – price determination- Short-run and Long-run equilibrium of a firm and Industry- Imperfect Competition – Monopoly – Price Determination – Price-Discrimination-Monopolistic Competition- Features- Meaning of Oligopoly – Duopoly.

Theory of Distribution - Determination of Factor Prices – Marginal Productivity Theory - Rent – Ricardian theory of Rent – Modern theory - Quasi Rent – Transfer earnings - Wages – Meaning and types of wages – Money and Real wages - Interest- Meaning – Gross and Net interests - Profits – Meaning – Gross and Net profits.

National Income : Definitions of National Income and Concepts- Measurement of National Income – Census of Product Method – Census of Income Method – Census of Expenditure Method- Methods of Measuring National Income in India; Problems and importance

Macro Economic Aspects - Classical theory of Employment –J.B. Say Law of Markets-Limitations – J.M. Keynes Effective Demand- Public Economics - Public Revenue – Public Expenditure – Public debt – Components of Budget.

Money, Banking and Inflation - Money – Definitions and Functions of money – Types of Money - Banking – Commercial Banks – Functions; Central Bank – Functions – Reserve Bank of India – Net Banking- Inflation – Definitions – Types – Causes and Effects of inflation – Remedial Measures.

Statistics for Economics - Meaning, Scope and Importance of Statistics in Economics with Diagrams (Bar diagrams and Pie diagrams)-Measures of central tendency – Mean, Median, Mode.

Economic Growth And Development - Differences Between Economic Growth and Development classification of the world countries - Indicators of Economic development - Determinants of Economic Development - Characteristic features of Developed Countries - Characteristic features of Developing countries with special reference to India

Population and Human Resources Development - Theory of Demographic Transition - World Population - Causes of rapid Growth of population in India - Occupational distribution of population of India - Meaning of Human Resources Development - Role of Education and Health in Economic Development- Human Development Index (HDI)

National Income - Trends in the growth of India's National Income - Trends in distribution of national income by industry Origin - Share of Public Sector and Private Sector in Gross Domestic Product - Share of Organised and Un-organised Sector in Net Domestic Product - Income Inequalities - Causes of Income Inequalities - Measures to control income inequalities -Unemployment in India – Poverty - Micro Finance-Eradication of Poverty

Agriculture Sector-Importance of agriculture in India - Features of Indian agriculture - Agriculture Labour in India - Land utilization pattern in India - Cropping pattern in India - Organic Farming -Irrigation facilities in India - Productivity of agriculture - Land holdings in India - Land reforms in India - Green Revolution in India - Rural credit in India - Rural Indebtedness in India - Agricultural

Marketing - Industrial Sector - Significance of the Indian Industrial Sector in Post –Reform Period -Industrial Policy Resolution 1948 - Industrial Policy Resolution 1956 - Industrial Policy Resolution 1991 - National Manufacturing Policy- Disinvestment - National

Investment Fund (NIF) -Foreign Direct Investment -Special Economic Zones (SEZs) - Causes of industrial backwardness in India -Small Scale Enterprises (MSMEs) - Industrial Estates - Industrial Finance in India - The Industrial Development under the Five Year Plans in India.

Tertiary Sector - Importance of Services Sector -India's Services Sector - State-Wise Comparison of Services - Infrastructure Development - Tourism - Banking and Insurance - Communication -Science and Technology - Software Industry in India

Planning And Economic Reforms - Meaning of Planning -NITI Ayog -Five Year Plans in India - XII Five Year Plan - Regional Imbalances - Role of Trade in Economic Development - Economic Reforms in India - GATT – WTO

Environment and Sustainable Economic Development - Environment - Economic Development -Environment and Economic Linkages. - Harmony between Environment & Economy

Economy Of Andhra Pradesh - History of Andhra Pradesh - Characteristic features of A.P. Economy -Demographic features - Occupational distribution of labour - Health Sector - Education -Environment - Agricultural sector - Industrial sector - Service and Infrastructure sector - Information and Technology - Tourism -Andhra Pradesh and Welfare Programmes/ Schemes

Economic Statistics - Measures of Dispersion - Definitions of Dispersion - Importance of Measuring Variation -Properties of a good measure of variation -Methods of Studying Variation - Measures of Dispersion for average - Lorenz Curve - Correlation -Index Numbers - Weighted Aggregation Method.

## **V. Methodology (Marks: 20)**

### **1. Aims and objectives of learning Social Sciences**

- values through Social Sciences - learning objectives and illustrations - learning objectives in constructivist approach - Academic Standards

### **2. School curriculum and resources in Social Sciences**

- NCF-2005, RTE-2009, SCF-2011 - syllabus – Learning Resources.

### **3. Social Sciences as an integrating area of study: Context and concerns**

- Distinguishing between Natural and Social Sciences - Social Studies and various Social Sciences -contributions of some eminent Social Scientists

### **4. Approaches and strategies for learning Social Sciences**

- Teaching methods- collaborative learning approach - 5E learning model - problem solving approach -concept mapping– planning: Lesson plan, Year Plan- Teaching Learning Material .

### **5. Community Resources and Social Sciences Laboratory**

### **6. Tools and techniques of assessment for learning: Social Sciences**

7. Understanding concept of Evaluation - CCE - assessment framework - assessment learning of students with special need

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**Paper I – ENGLISH LANGUAGE PROFECIENCY Test Syllabus**

**English: (Content) (Marks: 100)(Intermediatelevel )**

Area	Level Of Testing
<b>Parts of Speech</b>	Nouns, Pronouns, Adjectives, Adverbs, Conjunctions, Interjections - Types and functions
<b>Synonyms</b>	Identification of Shades of Meaning
<b>Antonyms</b>	Identifying Antonyms in a Context
<b>Homophones</b>	Identification & Usage
<b>Homonyms</b>	Identification & Usage
<b>Hypernyms &amp; Hyponyms</b>	Identification & Usage
<b>Spelling</b>	Spelling
<b>One-word Substitutes</b>	Referring to Persons / Professions, Places, Collections
<b>Phrasal Verbs</b>	Identification of Meaning and usage
<b>Idiomatic Expressions</b>	Identification, Usage
<b>Proverbs</b>	Proverbs
<b>Word Formation</b>	Suffixes, Prefixes and other forms
<b>Short Forms - Full Forms</b>	Common Short Forms - Full Forms
<b>Abbreviations - Full Forms</b>	Common Abbreviations - Full Forms
<b>Word Collocations</b>	Word Collocations
<b>Foreign Phrases Used in English</b>	Standard and common Foreign Phrases Used in English
<b>Helping Verbs</b>	Form, Function & Contractions
<b>Modal Auxiliaries</b>	Form, Function & Contractions
<b>Ordinary Verbs</b>	Form, Function & Contractions
<b>Articles</b>	Use of Articles Including Omissions
<b>Prepositions</b>	Simple, Compound Prepositions Including Prepositions following Certain Words and Prepositional Phrases

<b>Clauses</b>	Main Clauses, sub-ordinate Clauses, Adjectival Clauses, Noun Clauses, Adverbial Clauses, Relative Clauses, Finite and Non-finite Clauses
<b>Sentence Structures</b>	Sentence Structures
<b>Degrees of Comparison</b>	Form, Function, Construction, Transformation
<b>Language Functions</b>	Language Functions with social norms (formal and informal)
<b>Question Tags</b>	Imperatives and Statements with semi negatives and indefinites subjects
<b>Types of Sentences</b>	Types of Sentences
<b>Sentence Improvement</b>	Sentence Improvement
<b>Direct Speech &amp; Indirect Speech</b>	Statements, Questions, Imperatives and Exclamatory Sentences
<b>Active Voice &amp; Passive Voice</b>	Active Voice & Passive Voice
<b>Tenses</b>	Use of tenses and framing including IF conditionals Type 1, 2 &3
<b>Agreement between subject &amp; Verb</b>	Agreement between subject & Verb
<b>Word Order</b>	Word Order In a phrase or a sentence
<b>Linkers</b>	Linkers
<b>Transformation of Sentences</b>	Simple. Compound and Complex Sentences
<b>Common Errors</b>	Based on all Vocabulary and Grammar Topics
<b>Punctuation and Capitalization</b>	Use of capital letters, comma, full stop, question mark, exclamation mark and inverted commas
<b>Writing of Discourses</b>	Letter Writing, News Report, Diary Entry, Conversation, Description, Diary Entry, Biographical Sketch, Story, Script for a speech
<b>Dictionary Skills</b>	Dictionary Skills
<b>Reading comprehension</b>	Prose (GENERAL)



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**Paper II – ENGLISH Syllabus**

**Part – I**

**General Knowledge and Current Affairs (Marks: 10)**

**Part – II**

**Perspectives in Education (Marks: 10)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), Rashtriya Aveshekar Abhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.

- Current Trends in Education – Badi pelusthondi, Badi ki Vasta, Mavuru – Mana Badi, Vidyanjali, Swacha Patasala, Inspire, Kalavutsav.
4. **Acts / Rights:**
    - Right of Children to Free and Compulsory Education Act - 2009
    - Right to Information Act - 2005
    - Child Rights
    - Human Rights.
  5. **National Curriculum** - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.
  6. **National Educational Policy-2020**

### Part - III

#### **Educational Psychology (Marks: 10)**

##### **1. Development of Child**

- Development, Growth & Maturation — Concept & Nature
- Principles of development and their education implication
- Factors influencing Development — Biological, Psychological, Sociological, emotional.
- Dimensions of Development and their interrelationships — Physical & Motor, Cognitive, Emotional, Social, Moral, Language relating to Infancy, early Childhood, late Child hood, dolescence.
- Understanding Development — Piaget, Kohlberg, Chomsky, Carl Rogers, Erikson
- Individual differences — Infra & Inter Individual differences in the areas of Attitudes, Aptitude, Interest, Habits, Intelligence and their Assessment.
- Development of Personality — Concept, Factors effecting development of personality, self concept.
- Adjustment, Behavioural problems, Mental Health, Defense mechanism.
- Methods and Approaches of Child Development — Introspection, Observation, Interview, Case study, Experimental, Cross sectional and Longitudinal
- Developmental tasks and Hazards

##### **2. Understanding Learning**

- Concept, Nature of Learning — input — process — outcome
- Factors of Learning — Personal and Environmental
- Approaches to Learning and their applicability—Behaviorism (Skinner, Pavlov, Thorndike) Constructivism (Piaget, Vygotsky), Gestalt(Kohler, Koffka) and Observational (Bandura)
- Dimensions of Learning — Cognitive, Affective and Performance.
- Motivation and Sustenance —its role in learning.
- Memory & Forgetting
- Transfer of Learning

### **3. Pedagogical Concerns**

- Teaching and its relationship with learning and learner.
- Learners in Contexts: Situating learner in the socio-political and cultural context
- Children from diverse contexts—Children With Special Needs (CWSN), Inclusive Education.
- Understanding of pedagogic methods — Enquiry based learning, Project based learning, Survey, Observation and Activity based learning, Cooperative and collaborative learning.
- Individual and Group learning: Issues and concerns with respect to organizing learning in class room like Study habits, Self learning and Learning to learn skills.
- Organizing learning in heterogeneous class room groups — Socio-economic background, Abilities and Interest.
- Paradigms of organizing Learning-Teacher centric, Subject centric and Learner centric.
- Theory of instruction – Bruner
- Teaching as Planned activity — Elements of Planning
- Phases of Teaching — Pre active, Interactive and Post active
- General and Subject related skills, competencies required in teaching and attributes of good facilitator.
- Learning resources — Self, Home, School, Community, Technology.
- Class room Management: Role of student, teacher, Leadership style of teacher, Creation of non threatening learning environment, Managing behaviour problems, Guidance & Counselling, Punishment and its legal implications, Rights of a child, Time Management.
- Distinction between Assessment for Learning & Assessment of Learning, School based Assessment, Continuous & Comprehensive Evaluation : Perspective & Practice.
- Understanding teaching & learning in the context of NCF, 2005 & Right to Education Act, 2009.

### **Part - IV**

**Content: English (Marks: 50) ( Present 3 years Bachelor Degree course in A.P. State ( Telugu Academy Text Books )**

#### **I. Reading Comprehension of an unseen prose text**

#### **II. Language and Communication**

- Parts of Speech
- Articles-Determiners
- Conjunctions (Linkers/Connectors/ Cohesive devices).
- Prepositions
- Adverbs –Types and their order in sentences.
- Tense and Time
- Adjectives including Degrees of Comparison
- Modals
- Word Order in Sentences
- Clauses

- Types of Sentences
- Voice
- Direct and Indirect Speech
- Non-finites (Infinitives, Gerunds and Participles)
- Complex and Compound Sentences
- Phrasal Verbs/Idioms/Prepositional Phrases
- Punctuation Marks
- Phonetics -Sounds, Stress and Intonation, Minimal Pairs, Minimal Contrastive Pairs
- Composition- Letter writing, Message writing, Notice writing, Report writing, Article writing, Paragraph writing and Precis writing

### III.Literature

A. Detailed study of English Literature from 1798 to 1900 with special reference to Wordsworth, S.T.Coleridge, John Keats , Shelley, Lord Byron, Charles Lamb, Charles Dickens, William Hazlitt, Alfred Lord Tennyson, Robert Browning, Mathew Arnold, George Eliot, Thomas Carlyle and John Ruskin.

B. Reading Comprehension of a literary Prose and Poem.

### C. Poetry

Name of the Poet	Title
William Shakespeare	-Let Me Not To The Marriage of True Minds(A sonnet)
John Milton	On Time On Shakespeare
William Wordsworth	The Solitary Reaper Education of Nature A Slumber Did My Spirit Seal The World Is Too Much With Us
William Blake	A Poison Tree The Divine Image The School Boy
John Keats	On The Grasshopper and The Cricket Ode to The Nightingale Ode to Autumn
John Donne	A Literature Upon the Shadow The Sunne Rising
W.B.Yeats	The Wild Swans of Coole Byzantium The Second Coming
S.T.Coleridge	The Rime of The Ancient Mariner
Emily Dickinson	Trees

Robert Frost	The Road Not Taken Dust of Snow Stopping By Woods on a Snowy Evening
Rabindranath Tagore	The Last Bargain Where The Mind is Without Fear From Lover's Gift
Sarojini Naidu	The Bangle Sellers

#### D. Prose (Essay/Short Story/Novel)

Name of the Essayist/Writer/Novelist	Title
Francis Bacon	Of Studies
Charles Lamb	Dream Children-A Reverie
Oscar Wilde	The Nightingale and The Rose
Stephen Leacock	How to Live to be 200 The Conjuror's Revenge
E.V.Lucas	The face on the Wall
O'Henry	After Twenty Years
Isaac Asimov	Robots and People
A.G.Gardiner	On Shaking Hands
R.K. Laxman	The Gold Frame
Ruskin Bond	How Far is the River
George Orwell	Animal Farm (Original version)
R.K.Narayan	Next Sunday The Guide
Jane Austen	Pride and Prejudice
Jawahar Lal Nehru	Chapter III (The Quest) of Discovery of India

#### E. Drama

Name of the Writer	Title
William Shakespeare	The Tempest Macbeth Julius Caesar Hamlet
J.B.Priestly	Mother's Day(one act play)
Fritz Karinthy	The Refund
Mahaswtha Devi	Mother of 1084

**Note:** The candidates are expected to have a thorough knowledge of the above mentioned poets, essayists, novelists and dramatists and their respective works mentioned at the level that is expected of a student of literature.

## **F. Literary Criticism**

Mathew Arnold: The Study of Poetry

T.S.Eliot: Function of Criticism

### **Teaching Methodology (Marks: 20)**

1. Aspects of English language- History, Nature and Importance of English.
2. Problems and Principles of Teaching English.
3. Objectives of Teaching English.
4. Approaches, Methods and Techniques of Teaching English.
5. Developing Language Skills-Listening, Speaking, Reading and Writing.
6. Teaching – Learning Material – development, preparation and use (including use of ICT).
7. Developing Study and Reference Skills.
8. Remedial Teaching.
9. Evaluation in teaching / learning process.
10. Planning - Lesson planning.
11. Curriculum and Textbooks- Development and Use.

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**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC-2022**

**Category of Post: PGT**  
**Paper II – HINDI Syllabus**

**Part – I**

**General Knowledge and Current Affairs (Marks: 10)**

**Part – II**

**Perspectives in Education (Marks: 10)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), Rashtriya Aveshekar Abhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badi pelusthondi, Badi ki Vasta, Mavuru – Mana Badi, Vidyanjali, Swacha Patasala, Inspire, Kalavutsav.

**4. Acts / Rights:**

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

**5. National Curriculum - Framework, 2005: Perspective, Guiding Principles, Learning and**

## 6. National Educational Policy-2020

### Part - III

#### Educational Psychology (Marks: 10)

##### 1. Development of Child

- Development, Growth & Maturation — Concept & Nature
- Principles of development and their education implication
- Factors influencing Development — Biological, Psychological, Sociological, emotional.
- Dimensions of Development and their interrelationships — Physical & Motor, Cognitive, Emotional, Social, Moral, Language relating to Infancy, early Childhood, late Child hood, dolescence.
- Understanding Development — Piaget, Kohlberg, Chomsky, Carl Rogers, Erikson
- Individual differences — Infra & Inter Individual differences in the areas of Attitudes, Aptitude, Interest, Habits, Intelligence and their Assessment.
- Development of Personality — Concept, Factors effecting development of personality, self concept.
- Adjustment, Behavioural problems, Mental Health, Defense mechanism.
- Methods and Approaches of Child Development — Introspection, Observation, Interview, Case study, Experimental, Cross sectional and Longitudinal
- Developmental tasks and Hazards

##### 2. Understanding Learning

- Concept, Nature of Learning — input — process — outcome
- Factors of Learning — Personal and Environmental
- Approaches to Learning and their applicability—Behaviorism (Skinner, Pavlov, Thorndike) Constructivism (Piaget, Vygotsky), Gestalt(Kohler, Koffka) and Observational (Bandura)
- Dimensions of Learning — Cognitive, Affective and Performance.
- Motivation and Sustenance —its role in learning.
- Memory & Forgetting
- Transfer of Learning

##### 3. Pedagogical Concerns

- Teaching and its relationship with learning and learner.
- Learners in Contexts: Situating learner in the socio-political and cultural context
- Children from diverse contexts—Children With Special Needs (CWSN), Inclusive Education.
- Understanding of pedagogic methods — Enquiry based learning, Project based learning, Survey, Observation and Activity based learning, Cooperative and collaborative learning.
- Individual and Group learning: Issues and concerns with respect to organizing learning in class room like Study habits, Self learning and Learning to learn skills.
- Organizing learning in heterogeneous class room groups — Socio-economic background, Abilities and Interest.
- Paradigms of organizing Learning-Teacher centric, Subject centric and Learner centric.
- Theory of instruction – Bruner
- Teaching as Planned activity — Elements of Planning



- Phases of Teaching — Pre active, Interactive and Post active
- General and Subject related skills, competencies required in teaching and attributes of good facilitator.
- Learning resources — Self, Home, School, Community, Technology.
- Class room Management: Role of student, teacher, Leadership style of teacher, Creation of non threatening learning environment, Managing behaviour problems, Guidance & Counselling, Punishment and its legal implications, Rights of a child, Time Management.
- Distinction between Assessment for Learning & Assessment of Learning, School based Assessment, Continuous & Comprehensive Evaluation : Perspective & Practice.
- Understanding teaching & learning in the context of NCF, 2005 & Right to Education Act, 2009.

#### Part - IV

**Content (Marks: 50) : ( Present 3 years Bachelor Degree course in A.P. State ( Telugu Academy Text Books )**

1. हिंदी साहित्य का इतिहास: काल विभाजन - विभिन्न विद्वानों के विचार आदिकाल, भक्ति काल, रीति काल और आधुनिक काल
2. आधुनिक साहित्य: विभिन्न प्रवृत्तियाँ और प्रमुखवाद ( छायावाद, प्रगतिवाद, प्रयोगवाद, रहस्यवाद आदि ) साहित्यिक विधाएँ ( कविता, कहानी, उपन्यास, नाटक आदि )
3. हिंदी भाषा का इतिहास: उद्भव और विकास: हिंदी राष्ट्र भाषा, राजभाषा और विश्व भाषा के रूप में हिंदी देवनागरी लिपि का विकास, देश की एकता और हिंदी।
4. हिंदी भाषा का क्षेत्र: उपभाषाएँ और बोलियाँ
5. भारतीय काव्यशास्त्र: अर्थ, परिभाषा, प्रयोजन और लक्षण, रस, छंद, अलंकार
6. भाषा तत्व और व्याकरण: वर्णमाला : (स्वर, व्यंजन भेद वर्णों का उच्चारण स्थान) शब्दभेद: (रूप परिवर्तन के आधार पर विकारी अविकारी शब्द व्युत्पत्ति के आधार पर शब्द भेद रूढी, यौगिक, योग रूढ) उपसर्ग, प्रत्यय, लिंग वचन, कारक - काल - संधि - समास। पर्यायावाची शब्द, विलोम शब्द, शब्द परिचय तत्सम, तद्भव, देशी, विदेशी, क्रिया - सकर्मक, अकर्मक प्रेरणार्थक क्रियाएँ - मुहावरे, लोकोक्ति, कहावत, विराम चिह्न। वाक्य भेद, वाक्य और प्रयोग, वाक्य संरचना, भेद वाच्य कर्तृ वाच्य, कर्म वाच्य और भाव वाच्य पद-परिचय
7. हिंदी पाठ्य पुस्तकें (द्वितीय भाषा) छठवीं कक्षा से दसवीं कक्षा सहित (उपवाचक और पठनहेतु साहित)

**Teaching Methodology (Marks: 20)**

1. भाषा-अर्थ, परिभाषा, महत्व, प्रकृति और स्वरूप, ध्वनि विज्ञान, शब्द विज्ञान, वाक्य विज्ञान, विविध स्तरों पर हिंदी शिक्षण के लक्ष्य और उद्देश्य, प्रथम भाषा के रूप में हिंदी द्वितीय भाषा के रूप में हिंदी, त्रिभाषा सूत्र, भारतीय संविधान में हिंदी का स्थान।
2. हिंदी भाषा शिक्षण प्राथमिक, माध्यमिक और उच्च माध्यमिक स्तर पर

- (1) हिंदी भाषा - शिक्षण के उद्देश्य
  - (2) अच्छे शिक्षण और अच्छे शिक्षण की विशेषताएँ।
  - (3) हिंदी अध्यापक और शिक्षण की विशेषताएँ
  - (4) भाषा - शिक्षण के सामान्य सिद्धांत
  - (5) भाषा शिक्षण प्रणालियाँ
  - (6) भाषा शिक्षण की पद्धतियाँ (प्रत्यक्ष, परोक्ष, खेल मॉन्टेसरी, निर्देशित, डाल्टन, आगमन, सूक्ष्म शिक्षण आदि)
  - (7) शिक्षण सूत्र
3. शिक्षण में भाषा - कौशलों का महत्व  
 सुनना - ध्वनि की उत्पत्ति - ध्वनि और श्रवण का पारस्परिक संबंध  
 बोलना - शब्दोच्चारण, वाक्यंत्र, शुद्धोच्चारण का अभ्यास, मौखिक अभिव्यक्ति, पाठशाला में वार्तालाप का अभ्यास।  
 पठना: वाचन की विशेषताएँ, प्रकार दोष और उपचार  
 लिखना: महत्व, नियम विधियाँ, प्रकार, अक्षर-विन्यास
  4. पाठ्यक्रम और सहगामी क्रियाएँ  
 पाठ्यक्रम-पाठ्य पुस्तक, पुस्तकालय - दृश्य - श्रव्य उपकरण (शिक्षण उपकरण)  
 पाठ सहागामी क्रियाएँ, भाषा प्रयोगशाला।
  5. शिक्षण योजना:  
 (1) पाठ-योजना (गद्य, पद्य, व्याकरण, पत्र लेखन और रचना)  
 (2) इकाई पाठ योजना  
 (3) सूक्ष्म शिक्षण पाठ योजना
  6. मूल्यांकन  
 मूल्यांकन की धारणा, निरंतर समग्र मूल्यांकन, उत्तम परीक्षा की विशेषताएँ, प्रश्न पत्र का निर्माण, उपलब्धि परीक्षा, निदानात्मक एवं उपचारात्मक शिक्षण, अभिलेख।
  7. आंध्रप्रदेश में हिंदी शिक्षण में आनेवाली समस्याएँ व उनका निराकरण।
  8. ध्वनि, वर्ण, शब्द, वाक्य रचना व शुद्धाशुद्ध वर्तनी व वाक्य ज्ञान।

**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC-2022**  
**Category of Post: PGT**  
**Paper II – MATHEMATICS Syllabus**

**Part – I**

**General Knowledge and Current Affairs (Marks: 10)**

**Part – II**

**Perspectives in Education (Marks: 10)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
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**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

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- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Ethics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), Rashtriya Aveshekar Abhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badi pelusthondi, Badi ki Vasta, Mavuru – Mana Badi, Vidyanjali, Swacha Patasala, Inspire, Kalavutsav.

**4. Acts / Rights:**

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights

- Human Rights.
5. **National Curriculum** - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.
6. **National Educational Policy-2020**

### Part - III

#### **Educational Psychology (Marks: 10)**

##### **1. Development Of Child**

- Development, Growth & Maturation — Concept & Nature
- Principles of development and their education implication
- Factors influencing Development — Biological, Psychological, Sociological, emotional.
- Dimensions of Development and their interrelationships — Physical & Motor, Cognitive, Emotional, Social, Moral, Language relating to Infancy, early Childhood, late Child hood, adolescence.
- Understanding Development — Piaget, Kohlberg, Chomsky, Carl Rogers, Erikson
- Individual differences — Intra & Inter Individual differences in the areas of Attitudes, Aptitude, Interest, Habits, Intelligence and their Assessment.
- Development of Personality — Concept, Factors effecting development of personality, self concept.
- Adjustment, Behavioural problems, Mental Health, Defense mechanism.
- Methods and Approaches of Child Development — Introspection, Observation, Interview, Case study, Experimental, Cross sectional and Longitudinal
- Developmental tasks and Hazards

##### **2. Understanding Learning**

- Concept, Nature of Learning — input — process — outcome
- Factors of Learning — Personal and Environmental
- Approaches to Learning and their applicability—Behaviorism (Skinner, Pavlov, Thorndike) Constructivism (Piaget, Vygotsky), Gestalt(Kohler, Koffka) and Observational (Bandura)
- Dimensions of Learning — Cognitive, Affective and Performance.
- Motivation and Sustenance —its role in learning.
- Memory & Forgetting
- Transfer of Learning

##### **3. Pedagogical Concerns**

- Teaching and its relationship with learning and learner.
- Learners in Contexts: Situating learner in the socio-political and cultural context
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- Understanding of pedagogic methods — Enquiry based learning, Project based learning, Survey, Observation and Activity based learning, Cooperative and collaborative learning.
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- Organizing learning in heterogeneous class room groups — Socio-economic background, Abilities and Interest.

- Paradigms of organizing Learning-Teacher centric, Subject centric and Learner centric.
- Theory of instruction – Bruner
- Teaching as Planned activity — Elements of Planning
- Phases of Teaching — Pre active, Interactive and Post active
- General and Subject related skills, competencies required in teaching and attributes of good facilitator.
- Learning resources — Self, Home, School, Community, Technology.
- Class room Management: Role of student, teacher, Leadership style of teacher, Creation of non threatening learning environment, Managing behaviour problems, Guidance & Counselling, Punishment and its legal implications, Rights of a child, Time Management.
- Distinction between Assessment for Learning & Assessment of Learning, School based Assessment, Continuous & Comprehensive Evaluation : Perspective & Practice.
- Understanding teaching & learning in the context of NCF, 2005 & Right to Education Act, 2009.

#### Part - IV

#### **Content (Marks: 50) ( Present 3 years Bachelor Degree course in A.P. State ( Telugu Academy Text Books )**

- 1. Sets:** Sets and their representations. Union and Intersection of sets, Difference of sets, Complement of a set.
- 2. Relations & Functions:** Definition of relation, domain, co-domain and range of a relation. Function as a special kind of relation from one set to another. Domain, co-domain & range of a function, Real valued function of the real variable, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum and greatest integer functions. Sum, difference, product and quotients of functions. Union, intersection and complements of sets, and their algebraic properties, Relations, equivalence relations, mappings, one-one, into and onto mappings, composition of mappings.
- 3. Principle of Mathematical Induction:** Processes of the proof by induction.
- 4. Permutations & Combinations:** Fundamental principle of counting. Factorial n, Permutations and combinations, derivation of formulae and their connections, simple applications.
- 5. Complex Numbers:** Algebraic properties of complex numbers, Argand plane and polar representation of complex numbers, Statement of Fundamental Theorem of Algebra, solution of quadratic equations in the complex number system. Modulus and Argument of a complex number, square root of a complex number, Cube roots of unity, triangle inequality.
- 6. Linear Inequalities:** Algebraic solutions of linear inequalities in one variable and their representation on the number line. Graphical solution of linear inequalities in two variables, Solution of system of linear inequalities in two variables – graphically, Absolute value, Inequality of means, Cauchy-Schwarz Inequality, Tchebychef's Inequality
- 7. Binomial Theorem:** Statement and proof of the binomial theorem for positive integral indices. Pascal's triangle, general and middle term in binomial expansion, simple applications. Binomial Theorem for any index, Properties of Binomial Coefficients, Simple applications for approximations.
- 8. Sequence and Series:** Arithmetic, Geometric and Harmonic progressions, General terms and sum to n terms of A.P., G.P. and H.P. Arithmetic Mean (A.M.), Geometric

Mean (G.M.), and Harmonic Mean (H.M.), Relation between A.M., G.M. and H.M. Insertion of Arithmetic, Geometric and Harmonic means between two given numbers. Special series, Sum to n terms of the special series. Arithmetico-Geometric Series, Exponential and Logarithmic series.

- 9. Elementary Number Theory:** Peano's Axioms, Principle of Induction; First Principle, Second Principle, Third Principle, Basic Representation Theorem, Greatest Integer Function Test of Divisibility, Euclid's algorithm, The Unique Factorisation Theorem, Congruence, Sum of divisors of a number. Euler's totient function, Theorems of Fermat and Wilson
- 10. Quadratic Equations:** Quadratic equations in real and complex number system and their solutions. Relation between roots and co-efficients, nature of roots, formation of quadratic equations with given roots; Symmetric functions of roots, equations reducible to quadratic equations – application to practical problems. Polynomial functions, Remainder & Factor Theorems and their converse, Relation between roots and coefficients, Symmetric functions of the roots of an equation. Common roots.
- 11. Matrices and Determinants:** Determinants and matrices of order two and three, properties of determinants, Evaluation of determinants. Area of triangles using determinants, Addition and multiplication of matrices, adjoint and inverse of matrix. Test of consistency and solution of simultaneous linear equations using determinants and matrices.
- 12. Two dimensional Geometry:** Distance formula, section formula, area of a triangle, condition for the collinearity of three points, centroid and in-centre of a triangle, locus and its equation, translation of axes, slope of a line, parallel and perpendicular lines, intercepts of a line on the coordinate axes. Various forms of equations of a line, intersection of lines, angle between two lines, conditions for concurrence of three lines, distance of a point from a line, Equations of internal and external bisectors of angles between two lines, coordinates of centroid, orthocentre and circumcentre of a triangle, equation of family of lines passing through the point of intersection of two lines, homogeneous equation of second degree in x and y, angle between pair of lines through the origin, combined equation of the bisectors of the bisectors of the angles between a pair of lines, condition for the general second degree equation to represent a pair of lines, point of intersection and angle between pair of lines. Standard form of equation of a circle, general form of the equation of a circle, its radius and centre, equation of a circle in the parametric form, equation of a circle when the end points of a diameter are given, points of intersection of a line and a circle with the centre at the origin and condition for a line to be tangent to the circle, length of the tangent, equation of the tangent, equation of a family of circles through the intersection of two circles, condition for two intersecting circles to be orthogonal.  
Sections of cones, equations of conic sections (parabola, ellipse and hyperbola) in standard forms, condition for  $y = mx + c$  to be a tangent and points(s) of tangency.
- 13. Trigonometric Functions:** Positive and negative angles, Measuring angles in radians & in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. Expressing  $\sin(x+y)$  and  $\cos(x+y)$  in terms of  $\sin x$ ,  $\sin y$ ,  $\cos x$  &  $\cos y$ . Identities related to  $\sin 2x$ ,  $\tan 2x$ ,  $\sin 3x$  and  $\tan 3x$ . Solution of trigonometric equations, proofs and simple applications of sine and cosine formulae. Solution of triangle. Heights and Distances.

**Inverse Trigonometric Functions:** Definition, range, domain, principal value branches. Graphs of inverse trigonometric functions. Elementary properties of inverse trigonometric functions.

**14. Differential Calculus:** Polynomials, rational, trigonometric, logarithmic and exponential functions, Inverse functions. Graphs of simple functions, Limits, Continuity and differentiability; Derivative, Geometrical interpretation of the derivative, Derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions, Derivatives of composite functions; chain rule, derivatives of inverse trigonometric functions, derivative of implicit function, Exponential and logarithmic functions and their derivatives, Logarithmic differentiation, Derivative of functions expressed in parametric forms. Second order derivatives. Rolle's and Lagrange's Mean Value Theorems and their geometric interpretations.

**Applications Of Derivatives:** Applications of derivatives: rate of change, increasing / decreasing functions, tangents & normals, approximation, maxima and minima.

**Integral Calculus:** Integral as an anti-derivative. Fundamental integrals involving algebraic, trigonometric, exponential and logarithmic functions, Integration by substitution, by parts and by partial fractions, Integration using trigonometric identities, Definite integrals as a limit of a sum, Fundamental Theorem of Calculus. Basic Properties of definite integrals and evaluation of definite integrals; Applications of definite integrals in finding the area under simple curves, especially lines, areas of circles / Parabolas / ellipses, area between the two curves.

**15. Differential Equations:** Definition, order and degree, general and particular solutions of differential equation, Formation of differential equation whose general solution is given, Solution of differential equations by method of separation of variables, homogeneous differential equations of first order and first degree, Solutions of linear differential equation.

**16. Vectors:** Vectors and scalars, magnitude and direction of a vector, Direction cosines / ratios of vectors, Types of vectors (equal, unit, zero, parallel and collinear vectors), position vector of a point, negative of a vector, components of a vector, addition of vectors, multiplication of a vector by a scalar, position vector of a point dividing a line segment in a given ratio. Scalar (dot) product of vectors, projection of a vector on a line. Vector (cross) product of vectors.

**17. Solid Geometry:** Coordinates of a point in space, distance between two points Section formula, Direction cosines / ratios of a line joining two points -

**The Plane:** Equation of Plane in terms of its intercepts on the axis through the given points, Length of the perpendicular from a given point to a given plane, Bisectors of angles between two Planes, Combined Equation of Two Planes, orthogonal projection on a plane.

**The Line:** Equations of a Line, angle between a line and a Plane, the Condition that a given line may lie in a given plane, the condition that two given lines are coplanar, Number of arbitrary constants in the Equations of a Straight Line. Sets of Conditions which determine a line, the Shortest distance between two lines. The length and Equations of the line of Shortest distance between two straight lines, Length of the perpendicular from a given point to a given line, Intersection of three planes, Triangular Prism, skew lines.

**The Sphere:** Definition and equation of the Sphere, Equation of the sphere through four given points, Plane section of the sphere, Intersection of Two Spheres; Equation of a Sphere through a given circle : Intersection of a sphere and a line. Power of a point; Tangent Plane; Plane of Contact, Polar Plane, Conjugate points, Conjugate planes: Angle of intersection of Two Spheres. Conditions for two spheres to be orthogonal: Radical Plane, Coaxial System of Spheres; Simplified form of the equation of Two Spheres.

Cones, cylinders and Conicoids: Definitions of a cone, vertex, guiding curve, generators, Equation of the cone with a given vertex and guiding curve, Enveloping cone of a sphere, Quadratic of cones with vertex at origin, Condition that the general equation of the second degree should represent a cone, Condition that a cone may have three mutually perpendicular generators, Intersection of a line and a quadric cone. Tangent lines and tangent plane at a point. Condition that a plane may touch a cone. Reciprocal cones. Intersection of two cones with a common vertex. Right circular cone. Equation of the right circular cone with a given vertex, axis and semi-vertical angle.

Definition of a cylinder, Equation to the cylinder whose generators intersect a given conic and are parallel to a given line, enveloping cylinder of a sphere. The right circular cylinder, Equation of the right circular cylinder with a given axis and radius.

The general equation of the second degree shapes of some surfaces, Nature of Ellipsoid, Nature of Hyperboloid of one sheet.

- 18. Statistics:** Measures of central tendency for grouped and ungrouped data. Measures of dispersion; for ungrouped / grouped data. Analysis of frequency distributions with equal means but different variances.
- 19. Probability:** Random experiments: outcome, sample spaces. Events: occurrence of events, exhaustive events, mutually exclusive events, Probability of an event, probability of 'not', 'and' & 'or' events., Multiplication theorem on probability. Conditional probability, independent events, Baye's theorem, Random variable and its probability distribution, Binomial and Poisson distributions and their properties.
- 20. Linear Algebra:** Examples of vector spaces, vector spaces and subspace, independence in vector spaces, existence of a Basis, the row and column spaces of a matrix, sum and intersection of subspaces. Linear Transformations and Matrices, Kernel, Image, and Isomorphism, change of bases, Similarity, Rank and Nullity. Inner Product spaces, orthonormal sets and the Gram-Schmidt Process, the Method of Least Squares. Basic theory of Eigenvectors and Eigenvalues, algebraic and geometric multiplicity of eigen value, diagonalization of matrices, application to system of linear differential equations. Generalized Inverses of matrices, Moore-Penrose generalized inverse. Real quadratic forms, reduction and classification of quadratic forms, index and signature, triangular reduction of a pair of forms, singular value decomposition, extrema of quadratic forms. Jordan canonical form, vector and matrix decomposition.
- Field extensions, fundamental theorem of Galois theory, splitting fields, algebraic closure and normality, Galois group of a polynomial, finite fields, separability, cyclic extensions, solvability by radicals.
- 21. Analysis:** Monotone functions and functions of bounded variation, Real valued functions, continuous functions, Absolute continuity of functions, standard properties. Uniform continuity, sequence of functions, uniform convergence, power series and radius of convergence, Riemann-Stieltjes integration, standard properties,



multiple integrals and their evaluation by repeated integration, change of variable in multiple integration . Uniform convergence in improper integrals, differentiation under the sign of integral – Leibnitz rule, Dirichlet integral, Liouville’s extension, Introduction to n-dimensional Euclidean space, open and closed intervals (rectangles), compact sets, Bolzano-Weierstrass theorem, Heine-Borel theorem. Maxima-minima of functions of several variables, constrained maxima-minima of functions, Analytic function, Cauchy-Riemann equations, singularities, Statement of Cauchy theorem and of Cauchy integral formula with applications, Residue Statement of Cauchy theorem and of Cauchy integral formula with applications, Residue and contour integration, Fourier and Laplace transforms, Mellin’s inversion theorem.

Conformal Mapping, Elliptic Function. Elementary Functions (Exponential, Logarithm, Complex Exponents, Trigs, Hyperbolic Functions) Integrals (Definite Integrals, Antiderivatives, Cauchy Goursat Theorem, Cauchy Integral Formula, Liouville’s Theorem, Fundamental Theorem of Algebra, Maximum Modulus Principle) Series (Sequences, Convergence of Series, Taylor Series, Laurent Series, Absolute and Uniform Convergence, Power Series techniques) Residues and Poles (Residues, Cauchy’s Residue Theorem, Residue at Infinity, Zeros of Analytic Functions.

## 22. Abstract algebra and real analysis:

**Groups:** Binary operations – Definition and properties, of Groups –Finite groups and group composition tables, sub groups and cyclic sub-groups, cyclic groups, Elementary properties of cyclic groups, subgroups of finite cyclic groups.

**Rings:** definitions and basic properties, homomorphism and isomorphism, fields, divisors of zero and cancellation laws, Integral Domain, the characteristic of a ring. Rings of polynomials. Polynomials in an indeterminate, Ideals and factor rings, Homomorphism and factor rings, Fundamental homomorphism theorem, Maximal and prime ideals.

## Teaching Methodology (Marks: 20)

1. Meaning and Nature of Mathematics, History of Mathematics.
2. Contributions of Great Mathematicians – Aryabhata, Bhaskaracharya, Srinivasa Ramanujan, Euclid, Pythagoras, George cantor.
3. Aims and Values of teaching Mathematics, Instructional objectives (Blooms taxonomy).
4. Mathematics curriculum: Principles, approaches of curriculum construction, Logical and Psychological, Topical and Concentric, Spiral approaches. Qualities of a good Mathematics text book.
5. Methods of teaching mathematics- Heuristic method, Laboratory method, Inductive and Deductive methods, Analytic and Synthetic methods, Project method and Problem Solving method.
6. Unit Plan, Year Plan, Lesson Planning in Mathematics.
7. Instructional materials, Edgar Dale’s Cone of Experience.
8. Evolving strategies for the gifted students and slow learners.
9. Techniques of teaching mathematics like Oral work, Written work, Drilling, Assignment, Project, Speed and Accuracy.
10. Mathematics club, Mathematics structure, Mathematics order and pattern sequence.
11. Evaluation – Types, Tools and Techniques of Evaluation, Preparation of SAT Analysis, Characteristics of a good test.

**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC-2022**  
**Category of Post: PGT**  
**Paper II – Physical Science Syllabus**

**Part – I**

**General Knowledge and Current Affairs (Marks: 10)**

**Part – II**

**Perspectives in Education (Marks: 10)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Ethics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), Rashtriya Aveshekar Abhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badi pelusthondi, Badi ki Vasta, Mavuru – Mana Badi, Vidyanjali, Swacha Patasala, Inspire, Kalavutsav.

#### 4. Acts / Rights:

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

#### 5. National Curriculum - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.

#### 6. National Educational Policy-2020

### Part - III

#### Educational Psychology (Marks: 10)

##### 1. Development Of Child

- Development, Growth & Maturation — Concept & Nature
- Principles of development and their education implication
- Factors influencing Development — Biological, Psychological, Sociological, emotional.
- Dimensions of Development and their interrelationships — Physical & Motor, Cognitive, Emotional, Social, Moral, Language relating to Infancy, early Childhood, late Child hood, adolescence.
- Understanding Development — Piaget, Kohlberg, Chomsky, Carl Rogers, Erikson
- Individual differences — Intra & Inter Individual differences in the areas of Attitudes, Aptitude, Interest, Habits, Intelligence and their Assessment.
- Development of Personality — Concept, Factors effecting development of personality, self concept.
- Adjustment, Behavioural problems, Mental Health, Defense mechanism.
- Methods and Approaches of Child Development — Introspection, Observation, Interview, Case study, Experimental, Cross sectional and Longitudinal
- Developmental tasks and Hazards

##### 2. Understanding Learning

- Concept, Nature of Learning — input — process — outcome
- Factors of Learning — Personal and Environmental
- Approaches to Learning and their applicability—Behaviorism (Skinner, Pavlov, Thorndike) Constructivism (Piaget, Vygotsky), Gestalt(Kohler, Koffka) and Observational (Bandura)
- Dimensions of Learning — Cognitive, Affective and Performance.
- Motivation and Sustenance —its role in learning.
- Memory & Forgetting
- Transfer of Learning

##### 3. Pedagogical Concerns

- Teaching and its relationship with learning and learner.
- Learners in Contexts: Situating learner in the socio-political and cultural context
- Children from diverse contexts—Children With Special Needs (CWSN), Inclusive Education.

- Understanding of pedagogic methods — Enquiry based learning, Project based learning, Survey, Observation and Activity based learning, Cooperative and collaborative learning.
- Individual and Group learning: Issues and concerns with respect to organizing learning in class room like Study habits, Self learning and Learning to learn skills.
- Organizing learning in heterogeneous class room groups — Socio-economic background, Abilities and Interest.
- Paradigms of organizing Learning-Teacher centric, Subject centric and Learner centric.
- Theory of instruction – Bruner
- Teaching as Planned activity — Elements of Planning
- Phases of Teaching — Pre active, Interactive and Post active
- General and Subject related skills, competencies required in teaching and attributes of good facilitator.
- Learning resources — Self, Home, School, Community, Technology.
- Class room Management: Role of student, teacher, Leadership style of teacher, Creation of non threatening learning environment, Managing behaviour problems, Guidance & Counselling, Punishment and its legal implications, Rights of a child, Time Management.
- Distinction between Assessment for Learning & Assessment of Learning, School based Assessment, Continuous & Comprehensive Evaluation : Perspective & Practice.
- Understanding teaching & learning in the context of NCF, 2005 & Right to Education Act, 2009.

#### Part - IV

**Content (Marks: 50) :**

**Classes VI – Intermediate Syllabus: (Difficulty level upto 3 years graduation in concerned subjects)**

- 1. Units And Measurements:** Systems of Measurement, Units of Measurements, Measurement of Length, Measurement of time, Accuracy, precision of instruments errors in measurement, Significant figures, Measurement of Mass and Density, Units and Dimensions Fundamental and derived physical quantities, Systems of units, Multiples and submultiples of SI units. Dimensions Dimensional formulae and dimensional equations, dimensional constants and dimensionless quantities, principle of homogeneity of dimensions. Application of dimensional method of analysis. Conversion of one system of units into another.
- 2. Motion In A Straight Line**  
Position, path length and displacement, Average velocity and average speed, Instantaneous velocity and speed, Acceleration, Kinematic equations for uniformly accelerated motion, Relative velocity, Velocity-time and position-time graphs, Kinematical Equations of motion by graphical Method, Scalars and Vectors, laws of addition of vectors, subtraction of vectors. Resolution of vectors, Motion in a plane, Motion in a plane with constant acceleration, Relative velocity in two dimensions, Projectile motion.
- 3. Laws Of Motion**  
The law of inertia, Newton's second law of motion, Newton's third law of motion. Force – Types of Force, Free Body Diagrams. Newton's Universal Gravitation, Centre of Mass, Centre of Gravity, Stability, Applications, Equations of Motion, Motion of a body under gravity - Acceleration due to Gravity "g", Equations of Motion for a freely falling

body, Equations of Motion for a body thrown upwards. Equations, Applications and problems. Universal law of gravitation, The gravitational constant, Kepler's laws, Acceleration due to gravity of the earth, Acceleration due to gravity below and above the surface of earth, Gravitational potential energy, Escape speed, Earth satellite, Energy of an orbiting satellite, Geostationary and polar satellites, Weightlessness. Work, Power, Energy, Conservation of Energy and Transformation of Energy, Renewable and Non-Renewable sources of Energy, Impulse, Law of conservation of linear momentum, Potential Energy (PE), Kinetic Energy (KE). Relation between KE and Linear momentum. Notions of work and kinetic energy: The work-energy theorem, The work-energy theorem for a variable force, The conservation of mechanical energy, The potential energy of a spring, Power, Collisions, Circular Motion, uniform circular motion, angular displacement, angular velocity, and angular acceleration, relationship between linear velocity and angular velocity, centripetal and centrifugal force, torque, couple, vector representation of torque, Vector product of two vectors, Equilibrium of a rigid body, Moment of inertia, Theorems of perpendicular and parallel axes, Dynamics of rotational motion about a fixed axis, Rolling motion. Simple harmonic motion and uniform circular motion, Velocity and acceleration in simple harmonic motion, Force law for Simple harmonic Motion, Energy in simple harmonic motion, Energy in simple harmonic motion, some systems executing Simple. Harmonic Motion, Damped simple harmonic motion, Forced oscillations and resonance Simple Pendulum, Law of conservation of energy in case of a simple pendulum. Elasticity - Elasticity and plasticity, stress and strain, Hooke's law, Moduli of elasticity. Fluid Mechanics Laws of Floatation, Principle of Buoyancy, pressure in a fluid. Stream line flow Bernoulli's theorem and its applications. Viscosity, Reynolds number, Surface tension, Simple Machines and Moments Moment of a Force, Wheel and Axle, Screw Jack, Gears, Friction, Causes of friction, advantages of friction, disadvantages of friction, methods of reducing friction, Fluid friction, Ball – Bering Principal.

#### 4. Ray And Optical Instruments

Light - Sources & Nature of Light, Propagation of Light, Reflection, Refraction, Laws of Reflection, Sign convention for reflection by spherical mirrors, Image formed by Plane Mirror, Spherical Mirrors (Ray diagrams), Mirror formula and Magnification, Refraction of Light through Prism and lenses (convex, concave), Refractive index, Snell's Law, Refractive index of material of prism by minimum deviation Method, Image formation by lenses (Ray Diagrams), Sign convention for spherical lenses, Lens formula, Len's Makers formula and magnification, Power of lenses, Refraction of light through prism and Glass Slab, Dispersion of light and formation of Rainbow, Scattering of light – Raman Effect. Atmospheric refraction (Twinkling of stars, Advanced sunrise and delayed sunset), the Human eye and Colourful world, Structure of Human Eye Defects of Vision, Critical angle, Total Internal Reflection - Relation between Critical angle and Refractive Index, application of total internal reflection to Optical fibers, Lasers. Newton's Corpuscular Theory, Huygens' Wave Theory, Electromagnetic spectrum. Huygens' Explanation of Reflection, Refraction, interference and diffraction of plane waves at a plane surface. Polrisation Optical Instruments-Microscope, Telescope, Formula for magnification of microscope, Astronomical and Terrestrial Telescopes.

**5. Waves:** Transverse and longitudinal waves, Displacement relation in a progressive wave, The speed of a travelling wave, The principle of superposition of waves, Reflection of waves, Beats, Doppler effect, Characteristics of Sound, Speed of sound in different media, Reflection of sound, Echoes, standing waves, nodes & antinodes, measurement of wavelength, Multiple reflection of sound, its uses, Hearing and audibility of a sound, Ultrasound, uses, Sound -Propagation of sound, Musical Instruments, Velocity of Sound in Gases, Solids & Liquids, Progressive & stationary waves. Forced Vibrations, Natural Vibrations – Resonance with examples, Loudness and pitch of sound their relation with amplitude and frequency, Audible and inaudible sounds, Noise and music, Noise pollution: sources, control and reduction.

**6. Thermal Properties Of Matter**

Sources of Heat, Transmission of Heat, Heat and Temperature, Temperature and Kinetic Energy, Measurement of Temperature, Fahrenheit and Centigrade scales, Different types of thermometers, Effects of Heat Expansion of solids, liquids, gaseous, Change of state, Change of density with temperature, Examples in daily life, Applications of specific heat capacity, Evaporation, Condensation, Humidity, Dew and Fog, Boiling, Melting and Freezing. Expansion of Solids and liquids-coefficients of expansion of Solids and liquids. Anomalous expansion of water, its significance in nature. Kelvin scale of temperature, Boyle's and Charle's laws. Ideal gas equation. Heat capacity, specific heat, experimental determination of specific heat by method of mixtures. Specific heat of gas ( $C_p$  and  $C_v$ ), Calorimetry - specific heat of solids and liquids, latent heat of fusion and latent heat of vaporization, External work done by a gas during its expansion. Relation between  $C_p$  and  $C_v$  (derivation) Latent heat, Determination of latent heat of vaporization of water. Newton's law of cooling, Thermal equilibrium, Zeroth law of thermodynamics, Heat, internal energy and work, First law of thermodynamics, Specific heat capacity, Thermodynamic state variables and equation of State, Thermodynamic processes, Heat engines, Refrigerators and heat pumps, Second law of thermodynamics, Reversible and irreversible processes, Carnot engine, Carnot's theorem. Kinetic Theory, Introduction, Molecular nature of matter, Behaviour of gases, Kinetic theory of an ideal gas, Law of equipartition of energy, Specific heat capacity, Mean free path.

**7. Electricity**

Electrostatics - Electrification by friction, Charges, Coulomb's Law: Permittivity of Free Space and Medium, Electric Field - Electric lines of force, their properties – Electric Flux, Electric Dipole, Dipole in a Uniform External Field, Continuous Charge Distribution, Gauss's Law, Application of Gauss's Law, Electric intensity, Electrostatic Potential, Relation between electrostatic potential and electric intensity. Capacitance and capacitors, The Parallel Plate Capacitor, Combination of Capacitors, Van de Graaff Generator, Dielectric constant, Condenser, its uses -Dielectric Strength - Effect of dielectric on capacitance of capacitors. Current electricity - Electric Current and Potential, EMF, Primary Cells-Series and Parallel connection-Electric circuits, Electrical Resistance, Ohm's Law and its verification, Electric shock. Ohmic and Non Ohmic elements, Resistance Resistances in Series and Parallel, Kirchhoff's Laws.

Wheatstone Bridge, Meter Bridge, Potentiometer, Heating Effects of Electric Current-Joule's Law, Faraday's Laws of Electrolysis, Electric current - Flow of Electric charges in a metallic conductor - Drift velocity and mobility - Relation between electric current and drift velocity, Specific Resistance, Resistivity, Conductance, Electrical Energy – Power, Electrical Energy consumption.

- 8. Electromagnetism** – Magnets and their properties, Magnetic field and field lines, Oersted's Experiment, Ampere's Law, Magnetic field near a long straight wire and magnetic field at the Center of a circular coil carrying current, Field on the axis of circular coil carrying current, Force on a moving charge in a magnetic field - Force on a current carrying conductor placed in a magnetic field. Force between two long straight parallel conductors carrying current, Definition of Ampere. Fleming's Left Hand Rule. Current loop as magnetic dipole, force and Torque on Current loop in an uniform magnetic field, magnetic dipole moment of a revolving electron. The Moving Coil Galvanometer, Electromagnetic induction, Magnetic Flux, Induced EMF, Faraday's and Lenz's Law. Fleming's Right Hand Rule, Self Inductance, Mutual Inductance, Principle of Transformer, Working of Electric motor, AC, Electric Generator, DC Electric Generator, Eddy Currents, Electromagnetic Waves, Displacement Current, Electromagnetic Waves, Electromagnetic Spectrum, AC Voltage Applied to a Resistor, Representation of AC Current and Voltage by Rotating Vectors — Phasors, AC Voltage Applied to an Inductor, AC Voltage Applied to a Capacitor, AC Voltage Applied to a Series LCR Circuit, Power in AC Circuit: The Power Factor, LC Oscillations.
- 9. Modern Physics** - Alpha-particle Scattering and Rutherford's Nuclear Model of Atom, Atomic Spectra, Bohr Model of the Hydrogen Atom, The Line Spectra of the Hydrogen Atom, DE Broglie's Explanation of Bohr's Second Postulate of Quantization, Atomic Masses and Composition of Nucleus, Size of the Nucleus, Mass-Energy and Nuclear Binding Energy, Nuclear Force, Radioactivity, Nuclear Energy, Electron Emission, Photoelectric Effect, Experimental Study of Photoelectric Effect, Photoelectric Effect and Wave Theory of Light, Einstein's Photoelectric Equation: Energy Quantum of Radiation, Particle Nature of Light: The Photon, Wave Nature of Matter, Davisson and Germer Experiment, Classification of Metals, Conductors and Semiconductors, Intrinsic Semiconductor, Extrinsic Semiconductor, p-n Junction, Semiconductor diode, Application of Junction Diode as a Rectifier, Special Purpose p-n Junction Diodes, Junction Transistor, Digital Electronics and Logic Gates, Integrated Circuits, Elements of a Communication System, Basic Terminology Used in Electronic Communication Systems, Bandwidth of Signals, Bandwidth of Transmission Medium, Propagation of Electromagnetic Waves, Modulation and its Necessity, Amplitude Modulation, Production of Amplitude Modulated Wave, Detection of Amplitude Modulated Wave.
- 10. Natural Phenomena** – Lightning: Charging by rubbing, Types of charges and nature of interaction of charged bodies, Transfer of charge: electroscope as a detector of charging, Lightning: discharge, earthing, lightning conductors, Safety measures during a thunder storm. Earthquake: Earthquake, Causes of an earthquake, Seismic fault zone, Protection to damage caused by earthquakes, Measurement of intensity of earthquake, Seismograph,
- 11. Our Universe:** Constellations, Zodiac, Solar System, The Sun, Planets, Their Sizes, Masses and distance from Sun, Source of Energy, The Moon its phases surface, Stars, Meteors and Comets, Asteroids, Light year, Life on the Planet - Earth.

- 12. States Of Mater – Physical Nature Of Matter** - Composition of matter: particles (Historical introduction), Characterization of matter in terms of physical properties, Characteristics of particles of matter: space between them, attraction between them, their continuous motion, States of matter: solids, liquids and gasses, Shape, mass, volume and density of matter, Change of state of matter with temperature and pressure, Evaporation and condensation: factors effecting the rate of condensation/evaporation- surface area, temperature, humidity, wind speed. Evaporation and cooling with examples. Mixtures, type of mixtures, homogeneous and hetero generous, Solution, components, properties, concentration, dilute and saturated Solutions, Mass / Mass percentage; Mass / volume percentage, Suspension, properties of suspensions, Colloidal solution, properties of colloids, Tyndall effect, Separating the components of a mixture, Separating components of blue / black ink, evaporation, Cream from milk by churning, centrifugation, Separating immiscible liquids, Separation by sublimation Separation by chromatography, Separation by distillation (miscible liquids), fractional distillation, Separating components of air, Obtaining pure copper sulphate from impure samples Applications of crystallization, Water purification system in water works, Physical and chemical change, Types of pure substances, elements, compounds, Comparison between mixture and compounds **Solids**- Metals and Non-metals, Physical properties of metals, luster, malleability, electrical conductivity, ductility, sonorous, heat conductors, Physical properties of non-metals Chemical properties of metals - Metals burnt in air, Metal reacts with water, Reaction with acids, Reactions with solutions of other metal salt solutions, Reactivity series, Reactions of metals and non-metals – formation of cation, anion and ionic compounds, Properties of Ionic compounds, Physical nature, Melting and boiling points, Solubility Conduction of electricity, Occurrence of metals, Extractions of metals – General Principles Of Metallurgy Occurrence and Relative Abundance of metals in earth's crust, The Metallurgy of Iron & Extraction, Protection of Metals and Prevention of Corrosion, Principles and methods of extraction - concentration, reduction by chemical and electrolytic methods and refining. Reaction with oxygen, acidic, basic nature of products, Reaction with water, Reaction with acid, Reaction with Base, Reactivity of metals in displacement reactions, Uses of metals and non-metals – **FLUIDS**- Electric Conductivity of Fluids, determination of good and poor conducting fluids, Chemical effects of electric current, Electrolytic cell: its construction and electroplating: Measurable Properties of Gases, Gas Laws, Graham's law of diffusion - Daltons law of partial pressures, Avogadro's law and Mole Concept, Ideal behavior, empirical derivation of gas equation, ideal gas equation, Kinetic molecular theory of gases, Kinetic gas equation (No derivation) - deduction of gas laws, Air, Composition of air, Measurement of Atmospheric Pressure, Air Pollution, Volumetric Composition of Water, Hardness of Water, Drinking Water and Supply, Water Pollution, Cyclone, Pascal's Law, Archimedes' Principle, Boyle's Law, Bernoulli's Principle, Wind, Rainfall.
- 13. Atomic Structure:** Matter - Its Structure, Cathode Rays, Canal Rays, Discovery of Neutron, Atomic Models - Arrangement of Sub Atomic Particles, Rutherford's model of atom and its drawbacks, Bohr's model of Hydrogen atom and its limitations, Sommerfeld's elliptical model, Schrodinger wave equation, Sub Energy Levels - Quantum Numbers, Atomic Orbitals, Relative energies of the atomic orbitals, Electronic configuration of Atoms, Some Physical Quantities of Atoms, Nature of Electromagnetic Radiation, Planck's Quantum theory. Explanation of Photo electric



effect. Features of Atomic Spectra. Characteristics of Hydrogen Spectrum. Bohr's explanation of Spectral Lines, Wave-particle nature of electron, De Broglie's hypothesis, Heisenberg's uncertainty principle, Important feature of the quantum mechanical model of an atom, Electronic configurations of atoms - Explanation of stability of half filled and completely filled orbitals. Isotopes, Isobars and Isotones, Applications of Radio Isotopes.

**14. Classification Of Elements:** Symbols and formulae, Radicals and their formulae, Chemical equation, Meaning, Calculations based on equations and relationship of reactants and products by weights, History of Classification of Elements, The Periodic Law, Modern Periodic Table, The significance of atomic number and electronic configuration, Classification of elements into s, p, d, f blocks and their characteristics, Period trends in physical and chemical properties of elements, Periodic trends of elements with respect to atomic radii, ionic radii, inert gas radii, ionization energy, electron gain energy, electro negativity, Valency.

**15. Chemical Bonding And Molecular Structure:**

Types of Bonds, Inter Molecular Attractions, Energy changes during a chemical reaction, Exothermic and Endothermic Relations, ionic bond, Electronic theory valence by Lewis and Kossel, energy changes in ionic bond formation, Properties of ionic Compounds, Covalent Bond, Multiple Covalent Bonds, Shapes of some molecules. VSEPR theory, The valence bond approach for the formation of covalent bonds, Directional nature of covalent bond, Properties of covalent bond, Different types of hybridization involving s, p and d orbitals and draw shapes of simple covalent molecules, Definition of coordinate covalent bond with examples, Description of molecular orbital theory of homo nuclear diatomic molecules. Hydrogen bonding-cause of formation of hydrogen bond- Types of hydrogen bonds-inter and intra molecular-General properties of hydrogen bonds.

**16. Chemical Kinetics, Energetics:** Chemical Calculations And Stoichiometry Chemical combination, Chemical decomposition, Chemical displacement, Chemical Double decomposition, Slow and Fast reactions, Rate of a Reaction, Factors affecting the reaction rate, Reversible and Irreversible Reactions, Law of conservation of mass, Law of definite proportions, Law of multiple proportions, Rate law, units of rate constant, Collision theory of reaction rates (elementary ideas), concepts of activation energy. Stoichiometry - Meaning of Chemical Equations, Thermochemical Equations, Problems Based on Equations, Laws of chemical combination, principles and examples, Different kinds of fuels burning with flame and without flame, Combustion of fuels, solid, liquid, gas, Ignition temperature, Matchstick – red, white phosphorous and antimony tri sulphide, ignition temperatures, Inflammable substances, Methods of controlling fire, fire extinguisher, Types of combustion, rapid, spontaneous, explosive. Flame, materials forming flames, structure of flame, Fuel, ideal fuel, fuel efficiencies, calorific value, Harmful products of burning fuels, global warming and acid rain. Molar mass, concept of equivalent weight with examples, Percentage composition of compounds and calculations of empirical and molecular formula of compounds, Oxidation number concept, Balancing of redox reactions by ion electron method and oxidation number method, Types of redox reactions, Applications of redox reactions in titrimetric quantitative analysis and redox reactions in electrode process, Numerical calculations based on equations. Equilibrium - Differences between Physical and Chemical change, Equilibrium in physical and chemical process, Dynamic nature of equilibrium, law of mass action, Equilibrium Constant, Factors affecting equilibrium.

### 17. Solutions, Acids, And Bases:

Solutions, Types, Solubility and Factors affecting concentration of solutions, Ionization of Substances in Water, Classification of solutions - Methods of expressing concentration of solutions - Molarity, Normality, Molality, Mole Fraction, Preparation of Acids and Bases, General properties of Acids and Bases, The Strengths of Acids and Bases, Neutralisation and Heat of Neutralization, Ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionic product of water, Concept of pH., pH of some common fluids, Importance of pH in everyday life, Sensitive of plants and animals to pH, pH of soils, pH in digestive system, pH-tooth decay, Self defense by animal and plants through chemical warfare. Some naturally occurring acids. Salts - Family of salts, pH of salts, Sources of common salt, Common salt – a raw material for chemicals, NaOH, Bleaching powder, baking soda,  $\text{NaHCO}_3$  uses washing soda and its uses, Salt crystals / crystallization, Plaster of Paris, Equilibrium in Physical process, Equilibrium in chemical process - Dynamic Equilibrium, Law of chemical Equilibrium - Law of mass action and Equilibrium constant. Homogeneous Equilibria, Equilibrium constant in gaseous systems. Relationship between  $K_p$  and  $K_c$ , Heterogeneous Equilibria. Applications of Equilibrium constant. Relationship between Equilibrium constant  $K$ , reaction quotient  $Q$  and Gibbs energy  $G$ . Factors affecting Equilibria.-Le-chatelier principle application to industrial synthesis of Ammonia and Sulphur trioxide. Acids, bases and salts-Arrhenius, Bronsted-Lowry and Lewis concepts of acids and bases. Ionisation of Acids and Bases -Ionisation constant of water and its ionic product- pH scale-ionisation constants of weak acids-ionisation of weak bases-relation between  $K_a$  and  $K_b$ -Di and poly basic acids and di and poly acidic Bases-Factors affecting acid strength-Common ion effect in the ionization of acids and bases-Hydrolysis of salts and pH of their solutions. Buffer solutions-designing of buffer solution-Preparation of Acidic buffer Solubility Equilibria of sparingly soluble salts. Solubility product constant Common ion effect on solubility of Ionic salts.

### 18. Hydrogen And Its Compounds

Position of hydrogen in the periodic table. Dihydrogen-Occurrence and Isotopes. Preparation of Dihydrogen, Properties of Dihydrogen, Hydrides: Ionic, covalent, and non-stoichiometric hydrides. Water: Physical properties; structure of water, ice. Chemical properties of water; hard and soft water, Temporary and permanent hardness of water, Hydrogen peroxide: Preparation; Physical properties; structure and chemical properties; storage and uses. Heavy Water, Hydrogen as a fuel.

### 19. S - Block Elements

Alkali metals; Electronic configurations; Atomic and Ionic radii; Ionization enthalpy; Hydration enthalpy; Physical properties; Chemical properties; Uses, General characteristics of the compounds of the alkali, metals: Oxides; Halides; Salts of Oxy Acids. Anomalous properties of Lithium: Differences and similarities with other alkali metals. Diagonal relationship; similarities between Lithium and Magnesium. Some important compounds of Sodium: Sodium Carbonate; Sodium Chloride; Sodium Hydroxide; Sodium hydrogen carbonate. Biological importance of Sodium and Potassium. Alkaline earth elements; Electronic configuration; Ionization enthalpy; Hydration enthalpy; Physical properties, Chemical properties; Uses. General characteristics of compounds of the Alkaline Earth Metals: Oxides, hydroxides, halides, salts of Oxyacids (Carbonates; Sulphates and Nitrates). Anomalous behavior of Beryllium; its diagonal relationship with Aluminum. Some important compounds of calcium: Preparation and uses of Calcium Oxide ; Calcium Hydroxide; Calcium Carbonate;Plaster of Paris; Cement. Biological importance of Calcium and Magnesium.

## 20. P - Block Elements

General introduction - Electronic configuration, Atomic radii, Ionization enthalpy, Electro negativity; Physical & Chemical properties. Important trends and anomalous properties of boron. Some important compounds of boron - Borax, Ortho boric acid, diborane. Uses of boron, aluminium and their compounds. General introduction - Electronic configuration, Atomic radii, Ionization enthalpy, Electro negativity; Physical & Chemical properties. Important trends and anomalous properties of carbon. Allotropes of carbon. Uses of carbon. Some important compounds of carbon and silicon – carbon monoxide, carbon dioxide, Silica, silicones, silicates and zeolites.

## 21. Organic Chemistry

Allotropic forms of Carbon, Oxides of Carbon, Uniqueness of Carbon and Source of Carbon Compounds, Anomalous behavior of first element namely Carbon, Carbon-catenation, allotropic forms, physical and chemical properties and uses, Bonding in carbon, Covalent bond, Catenation, Saturated and unsaturated carbon compounds, Chains, branches and rings, Bonding of carbon with other elements, Functional groups in carbon compounds, Homologous series. Nomenclature of carbon compounds, Chemical properties of carbon compounds, Combustion, Blue flame, Sooty flame, Oxidation, Addition reaction, Substitution reaction, Important carbon compounds, Ethanol, Ethanoic acid, properties of ethanol – General properties, reaction of ethanol with sodium, reaction with hot concentrated sulphuric acid, Properties of ethanoic acid – General properties. Esterification reaction, Reaction with a base, sodium hydroxide, sodium carbonate and sodium hydrogen carbonate, Soaps and detergents, Micelles. . Classification and nomenclature, Nature of C-X bond, Methods of preparation : Alkyl halides and aryl halides-from alcohols, from hydrocarbons (a)by free radical halogenation -(b) by electrophilic substitution (c) by replacement of diazonium group(Sand-Meyer reaction) (d) by the addition of hydrogen halides and halogens to alkenes-by halogen exchange(Finkelstein reaction), Physical properties-melting and boiling points,density and solubility, Chemical reactions, Reactions of haloalkanes (i)Nucleophilic substitution reactions (a)  $S_N^2$  mechanism (b)  $S_N^1$  mechanism (c) stereochemical aspects of nucleophilic substitution reactions - optical activity (ii) Elimination reactions (iii) Reaction with metals-Reactions of haloarenes: (i) Nucleophilic substitution (ii)Electrophilic substitution and (iii) Reaction with metals, Polyhalogen compounds: Uses and environmental effects of dichloro methane, trichloromethane, triiodomethane, tetrachloro methane, freons and DDT. Alcohols,phenols and ethers –classification, Nomenclature: (a)Alcohols, (b)phenols and (c)ethers, Structures of hydroxy and ether functional groups, Methods of preparation: Alcohols from alkenes and carbonyl compounds- Phenols from haloarenes, benzene sulphonic acid, diazonium salts, cumene, Physical properties of alcohols and phenols, Chemical reactions of alcohols and phenols (i) Reactions involving cleavage of O-H bond-Acidity of alcohols and phenols, esterification (ii) Reactions involving cleavage of C-O bond- reactions with HX,  $PX_3$ , dehydration and oxidation (iii) Reactions of phenols- electrophili aromatic substitution, Kolbe's reaction, Reimer - Tiemann reaction, reaction with zinc dust, oxidation, Commercially important alcohols (methanol,ethanol), Ethers-Methods of preparation: By dehydration of alcohols, Williamson synthesis- Physical properties-Chemical reactions: Cleavage of C-O bond and electrophilic substitution of aromatic ethers. Nomenclature and structure of carbonyl group, Preparation of aldehydes and ketones-(1) by oxidation of alcohols (2) by dehydrogenation of alcohols (3) from hydrocarbons -Preparation of aldehydes (1) from acyl chlorides (2) from nitriles and esters(3)from hydrocarbons-Preparation of ketones(1) from acyl chlorides (2)from

nitriles (3) from benzene or substituted benzenes, Physical properties of aldehydes and ketones, Chemical reactions of aldehydes and ketones-nucleophilic addition, reduction, oxidation, reactions due to -Hydrogen and other reactions (Cannizzaro reaction, electrophilic substitution reaction), Uses of aldehydes and ketones, CARBOXYLIC ACIDS, Nomenclature and structure of carboxyl group, Methods of preparation of carboxylic acids- (1) from primary alcohols and aldehydes (2) from alkyl benzenes (3) from nitriles and amides (4) from Grignard reagents (5) from acyl halides and anhydrides (6) from esters, Physical properties, Chemical reactions: (i) Reactions involving cleavage of OH bond-acidity, reactions with metals and alkalis (ii) Reactions involving cleavage of C-OH bond-formation of anhydride, reactions with  $\text{PCl}_5$ ,  $\text{PCl}_3$ ,  $\text{SOCl}_2$ , esterification and reaction with ammonia (iii) Reactions involving -COOH group-reduction, decarboxylation (iv) Substitution reactions in the hydrocarbon part - halogenation and ring substitution, Uses of carboxylic acids. Structure of amines, Classification, Nomenclature, Preparation of amines: reduction of nitro compounds, ammonolysis of alkyl halides, reduction of nitriles, reduction of amides, Gabriel phthalimide synthesis and Hoffmann bromamide degradation reaction. Physical properties, Chemical reactions: basic character of amines, alkylation, acylation, carbyl amine reaction, reaction with nitrous acid, reaction with aryl sulphonyl chloride, electrophilic substitution of aromatic amines-bromination, nitration and sulphonation. DIAZONIUM SALTS - Methods of preparation of diazonium salts (by diazotization), Physical properties. Chemical reactions: Reactions involving CYANIDES AND ISOCYANIDES - Structure and nomenclature of cyanides and isocyanides, Preparation, physical properties and chemical reactions of cyanides and isocyanides

## 22. Polymers:

Classification of Polymers -Classification based on source, structure, mode of polymerization, molecular forces and growth polymerization. Types of polymerization reactions-addition polymerization or chain growth polymerization-ionic polymerization, free radical mechanism-preparation of addition polymers-polythene, teflon and polyacrylonitrile-condensation polymerization or step growth polymerization-polyamides-preparation of Nylon 6,6 and nylon 6-poly esters- erylene - bakelite, melamine, formaldehyde polymer- copolymerization-Rubber-natural rubber-vulcanisation of rubber-Synthetic rubbers-preparation of neoprene and buna-N. Molecular mass of polymers-number average and weight average molecular masses-poly dispersity index (PDI). Biodegradable polymers-PHBV, Nylon 2-nylon 6. Polymers of commercial importance-poly propene, poly styrene, poly vinyl chloride (PVC), urea-formaldehyde resin, glyptal, bakelite- their monomers, structures and uses. Natural and artificial fibres, Synthetic fibre, Types of synthetic fibres - Rayon, Nylon, Polyester and acrylic, Characteristics of synthetic fibres, Plastics, polythene, Thermo plastics, Thermo setting plastic, Plastics as materials of choice: Non-reactive, light, strong and durable and poor conducting plastics, Plastics and environment - Bio degradable, non-bio degradable. Carbohydrates - Classification of carbohydrates-Monosaccharides: preparation of glucose from sucrose and starch- Properties and structure of glucose- D,L and (+), (-) configurations of glucose- Structure of fructose Disaccharides: Sucrose- preparation, structure-Invert sugar- Structures of maltose and lactose-Polysaccharides: Structures of starch cellulose and glycogen- Importance of carbohydrates. Aminoacids: Natural aminoacids-classification of aminoacids -structures and D and L forms-Zwitter ions Proteins: Structures, classification, fibrous and globular- primary, secondary, tertiary and quaternary structures of proteins- Denaturation of proteins. Enzymes: Enzymes, mechanism of enzyme action. Vitamins: Explanation-names- classification of vitamins - sources of vitamins-deficiency diseases of different types of vitamins. Nucleic acids: chemical composition of nucleic acids ,structures of nucleic acids, DNA

finger printing biological functions of nucleic acids. Hormones: Definition, different types of hormones, their production, biological activity, diseases due to their abnormal activities.

### **23. Chemistry In Everyday Life**

Drugs and their classification: (a) Classification of drugs on the basis of pharmacological effect (b) Classification of drugs on the basis of drug action (c) Classification of drugs on the basis of chemical structure (d) Classification of drugs on the basis of molecular targets. Drug-Target interaction-Enzymes as drug targets(a) Catalytic action of enzymes (b) Drug-enzyme interaction Receptors as drug targets. Therapeutic action of different classes of drugs: antacids, antihistamines, neurologically active drugs: tranquilizers, analgesics-non-narcotic,narcotic analgesics, antimicrobials-antibiotics,antiseptics and disinfectants- antifertility drugs. Chemicals in food-artificial sweetening agents, food preservatives, antioxidants in food. Cleansing agents-soaps and synthetic detergents.

### **24. Environmental chemistry:**

Sources of energy, Conventional sources of energy, Fossil fuels, Petroleum formation, refining of petroleum, constituents of petroleum, Natural gas, Petrochemicals, Thermal power plant, Hydro power plants, Improvements in the technology for using conventional sources of energy, Bio-Mass, Wind energy, Alternative or non-conventional sources of energy, Solar energy, Energy from sea, Tidal energy, Wave energy, Ocean thermal energy, Geothermal energy, Nuclear energy, Environmental consequences of production and consumption of energy, Sustainability of energy sources. Pollution: Air, Water and Soil Pollution, Oxides of Carbon, Carbon Monoxide, Oxides of nitrogen and Sulphur, Chlorofluoro carbons, Chemical reactions in atmosphere, smogs, major atmospheric pollutants, acid rain, Ozone and its reactions, effects of depletion of ozone layer, Green house effect and global warming, Pollution due to industrial wastes, Green chemistry as an alternative tool for reducing pollution with two examples.

### **Methodology (Marks: 20)**

1. The Nature of Science: Nature and scope of science, Science, ideology and Society, Structure of Science (a) Substantive structure - Empirical knowledge, Theoretical Knowledge - (Facts, Concepts, hypothesis, theory, Principle Law), (b)Syntactic Structure of Science - Scientific inquiry, Processes of Science, Attitudes of inquiry
2. The History and Development of Science: A brief introduction to oriental and western science, Contribution of the following Scientists in the Development of Science: Aryabhata, BhaskaraCharya, Aristotle, Copernicus, Newton, Einstein, C.V.Raman, Various organizations working for the development of science in India
3. Aims and Values of teaching Physical Sciences: Aims of teaching Physical Sciences, Values of teaching Physical Science, Correlation of Physics and Chemistry with other subjects
4. Objectives of teaching Physical Sciences: Meaning and importance of objectives, Bloom's Taxonomy of Educational objectives, Specific / Behavioral objectives / (Instructional objectives), Critique on Bloom's Taxonomy
5. Approaches and Methods of teaching Physical Sciences: Inductive and Deductive Approaches, Micro Teaching, Team Teaching, Lecture Method, Lecture cum Demonstration Method, Historical Method, Heuristic Method, Project Method, Laboratory method, Problem Solving Method, Scientific Method, Multimedia Approach in Teaching Learning process, Programmed Learning, CAI and CAL
6. Planning for effective instruction in Science: Year Plan, Unit Plan, Lesson Plan, Learning experience, characteristics, classification, source and relevance.

7. Teaching Learning Material (TLM): Characteristics and Importance of TLM, Classification and Types of TLM, Hardware and Software in TLM, TLM-Principles to be followed, Edgar Dale's cone of learning experience.
8. Science laboratories: Importance of Practical work in science, Planning of Science laboratories, Procurement, care and maintenance of laboratory equipment, Registers, Management of safety and science kits, Development of improvised Apparatus.
9. Physical Science Curriculum: Principles of Curriculum Construction, Defects in the existing school science curriculum, Qualities of a good Science Text Book.
10. Non-formal Science Education: Science Clubs, Science Fairs - purposes, levels, organization, advantages, Science Library, Role of NGOs and State in popularizing Science
11. Evaluation: Concept and Process of Evaluation, Tools of Evaluation, Preparation of Scholastic Achievement Test (SAT), Analysis and interpretation of Scores.



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**SPL DSC-2022**  
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**Paper II – PHYSICS Syllabus**

**Part – I**

**General Knowledge and Current Affairs (Marks: 10)**

**Part – II**

**Perspectives in Education (Marks: 10)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Ethics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), Rashtriya Aveshekar Abhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badi pelusthondi, Badi ki Vasta, Mavuru – Mana Badi, Vidyanjali, Swacha Patasala, Inspire, Kalavutsav.

**4. Acts / Rights:**

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

5. **National Curriculum** - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.
6. **National Educational Policy-2020**

### Part - III

#### **Educational Psychology (Marks: 10)**

##### **1. Development of Child**

- Development, Growth & Maturation — Concept & Nature
- Principles of development and their education implication
- Factors influencing Development — Biological, Psychological, Sociological, emotional.
- Dimensions of Development and their interrelationships — Physical & Motor, Cognitive, Emotional, Social, Moral, Language relating to Infancy, early Childhood, late Child hood, adolescence.
- Understanding Development — Piaget, Kohlberg, Chomsky, Carl Rogers, Erikson
- Individual differences — Infra & Inter Individual differences in the areas of Attitudes, Aptitude, Interest, Habits, Intelligence and their Assessment.
- Development of Personality — Concept, Factors effecting development of personality, self concept.
- Adjustment, Behavioural problems, Mental Health, Defense mechanism.
- Methods and Approaches of Child Development — Introspection, Observation, Interview, Case study, Experimental, Cross sectional and Longitudinal
- Developmental tasks and Hazards

##### **2. Understanding Learning**

- Concept, Nature of Learning — input — process — outcome
- Factors of Learning — Personal and Environmental
- Approaches to Learning and their applicability—Behaviorism (Skinner, Pavlov, Thorndike) Constructivism (Piaget, Vygotsky), Gestalt(Kohler, Koffka) and Observational (Bandura)
- Dimensions of Learning — Cognitive, Affective and Performance.
- Motivation and Sustenance —its role in learning.
- Memory & Forgetting
- Transfer of Learning

##### **3. Pedagogical Concerns**

- Teaching and its relationship with learning and learner.
- Learners in Contexts: Situating learner in the socio-political and cultural context
- Children from diverse contexts—Children With Special Needs (CWSN), Inclusive Education.
- Understanding of pedagogic methods — Enquiry based learning, Project based learning, Survey, Observation and Activity based learning, Cooperative and collaborative learning.
- Individual and Group learning: Issues and concerns with respect to organizing learning in class room like Study habits, Self learning and Learning to learn skills.



- Organizing learning in heterogeneous class room groups — Socio-economic background, Abilities and Interest.
- Paradigms of organizing Learning-Teacher centric, Subject centric and Learner centric.
- Theory of instruction – Bruner
- Teaching as Planned activity — Elements of Planning
- Phases of Teaching — Pre active, Interactive and Post active
- General and Subject related skills, competencies required in teaching and attributes of good facilitator.
- Learning resources — Self, Home, School, Community, Technology.
- Class room Management: Role of student, teacher, Leadership style of teacher, Creation of non threatening learning environment, Managing behaviour problems, Guidance & Counselling, Punishment and its legal implications, Rights of a child, Time Management.
- Distinction between Assessment for Learning & Assessment of Learning, School based Assessment, Continuous & Comprehensive Evaluation : Perspective & Practice.
- Understanding teaching & learning in the context of NCF, 2005 & Right to Education Act, 2009.

**Content (marks: 50) ( Present 3 years Bachelor Degree course in A.P. State  
( Telugu Academy Text Books )**

**I. Mechanics:** Vector Analysis: Scalar and Vector fields, Vector integration- Stokes, Gauss, and Green Theorems. Mechanics of Particles: Laws of motion, Motion of variable mass system, conservation of energy and momentum. Collisions in two and three dimension, Mechanics of Rigid Bodies: Rigid body- rotational kinematics relations, equation of motion for a rotating body, angular momentum and inertial tensor, Euler's equations, Mechanics of continuous media: Central Forces, Conservative nature of central forces, Equation of motion under a central force, Gravitational field, motion under inverse square law, derivation of Kepler's laws. Special Theory of Relativity: Galilean relativity, absolute frames, Michelson-Morley experiment, postulates of special theory of relativity, Lorentz transformation.

**II. Waves and oscillations:** Fundamentals of Vibrations: Simple harmonic motions, combination of two mutually perpendicular simple harmonic vibrations of same frequency and different frequencies, Lissajou's figures. Damped and force Oscillations: Damped harmonic oscillator, amplitude resonance, velocity resonance. Complex vibrations: Fourier theorem Coupled Oscillators, Vibrating strings: Transverse wave propagation along a stretched string, energy transport, transverse impedance. Ultrasonics: determination of wave length of ultrasonic waves, applications.

**III. Thermodynamics:** Kinetic theory of gases: Maxwell's law of distribution of molecular speeds, Toothed Wheel Experiment, Transport Phenomena –Viscosity of gases – thermal conductivity – diffusion of gases. Reversible and irreversible processes – Carnot's engine, Carnot's theorem – Second law of thermodynamics, Kelvin's and Clausius statements – Thermodynamic scale of temperature – Entropy, Change of Entropy, entropy (T-S) diagram. Thermodynamic potentials and Maxwell's equations: Derivation of Maxwell's thermodynamic relations –Clausius-Clayperon's equation – Derivation for ratio of specific heats –Derivation for difference of two specific heats for perfect gas. Joule Kelvin effect– expression for Joule Kelvin coefficient for perfect and Vanderwaal's gas; Low temperature Physics: Joule Kelvin effect – liquefaction of gas

using porous plug experiment. Liquefaction of helium, Adiabatic demagnetization – Low temperatures – principle of Refrigeration, Refrigerator and Air conditioning machines, Effects of Chloro and Fluro Carbons on Ozone layer; Black body-Ferry's black body – Wein's law, Rayleigh-Jean's law – Quantum theory of radiation - Planck's law – Measurement of radiation – Types of pyrometers – Solar constant, Temperature of sun. Statistical Mechanics: Ensembles, Phase space, Maxwell-Boltzmann's distribution law, Molecular energies in an ideal gas, Bose-Einstein Distribution law, Fermi-Dirac Distribution law, Black Body Radiation, Rayleigh-Jean's formula, Planck's radiation law, Weins Displacement, Stefan's Boltzmann's law from Planck's formula.

**IV. Optics:** The Matrix methods in paraxial optics: Matrix method, effect of translation, effect of refraction, imaging by a spherical refracting surface. Imaging by a co-axial optical system, Unit planes, Nodal planes, A system of two thin lenses. Aberrations and its types Interference: Principle of superposition, coherence, Interference of light Interference by division of wave front: Interference by division of amplitude, Diffraction: Fresnel and Fraunhofer diffraction, Resolving Power of grating, Polarization: Brewster's law, Malu's law, Babinet's compensator. Laser, Fibre Optics and Holography: Laser, Laser principle, Types of Lasers and its Applications. Fibre Optics: Optical fibres, Types of optical fibres, Principles of fibre communication and advantages of fibre communication. Holography: Basic Principle of Holography – Gabor hologram and its limitations, Holography applications.

**V. Electricity:** Electrostatics: Gauss law, uniformly charged sphere, charged cylindrical conductor and an infinite conducting sheet of charge. Deduction of Coulomb's law from Gauss law, Mechanical force on a charged conductor Electric potential –Potential due to a charged spherical conductor, electric field strength from the electric dipole and an infinite line of charge, Potential of a uniformly charged circular disc. Dielectrics: An atomic view of dielectrics, potential energy of a dipole in an electric field. Polarization and charge density, Gauss's law for dielectric medium– Relation between D,E, and P. Dielectric constant, susceptibility and relation between them. Capacitance: Capacitance of concentric spheres and cylindrical condenser, capacitance of parallel plate condenser with and without dielectric. Electric energy stored in a charged condenser – force between plates of condenser, measurement of dielectric constant and potential difference.

**VI. Magnetism And Electro Magnetism:** Magnetism: Magnetic properties of para, dia and ferromagnetic materials. Langevin's theory of paramagnetism, Weiss' theory of ferromagnetism –Concepts of magnetic domains, anti ferromagnetism and ferrimagnetism ferrites and their applications, Magneto statics: Moving charge in electric and magnetic field: Hall effect, cyclotron, synchrocyclotron and synchrotron – force on a current carrying conductor placed in a magnetic field, force and torque on a current loop, Biot–Savart's law Electromagnetic induction: Faraday's law –Lenz's law – expression for induced emf – time varying magnetic fields – Betatron –Ballistic galvanometer – self and mutual inductance, coefficient of coupling, energy stored in magnetic field – transformer ,Varying and alternating currents: Growth and decay of currents in LR, CR and LCR circuits – Critical damping. Alternating current relation between current and voltage in pure R, C and L vector diagrams – Power in ac circuits, LCR series and parallel resonant circuit –Q-factor, Maxwell's equations and electromagnetic waves.

**VII. Electronics:** Basic Electronics: Energy bands in solids, Intrinsic and extrinsic semiconductors, p-n junction diode, half wave and full wave rectifiers, filters, ripple factor, Zener diode and its application, p-n-p and n-p-n transistors, current components in transistors, CB,CE and CC configurations, transistor as an amplifier – Positive and negative feedback, Barkhausen criterion, RC coupled amplifier and phase shift oscillator. Digital Principles: Binary and Hexa decimal number system and their conversion, Logic gates: OR, AND, NOT gates, truth tables, realization of these gates using discrete components. NAND, NOR as universal gates, Exclusive – OR gate, De Morgan's Laws, Half and Full adders, Parallel adder circuits.

### **VIII. Modern physics:**

**A) Atomic physics and Molecular physics:** Atomic Spectra: Drawbacks of Bohr's atomic model - Sommerfeld's elliptical orbits, Stern & Gerlach experiment Vector atom model, L-S and j-j coupling schemes, Spectra of alkali atoms, Alkaline earth spectra, Zeeman Effect, Paschen-Back Effect and Stark Effect. Molecular Spectroscopy: determination of inter nuclear distance. Vibrational energies and spectrum of diatomic molecule, Raman Effect, Classical theory of Raman Effect.

**B) Quantum Mechanics:** Spectral radiation, Planck's law. Photoelectric effect, Einstein's photoelectric equation, Compton's effect, Matter Waves: de Broglie's hypothesis – wavelength of matter waves and their properties, Davisson and Germer experiment. Double slit experiment. Uncertainty Principle: Heisenberg's uncertainty principle for position and momentum, Energy and time. Schrodinger Wave Equation: Schrodinger time independent and time dependent wave equations, significance and its applications.

**C) Nuclear Physics:** Nuclear Structure: Properties of nucleus, Binding energy of nucleus, nuclear forces, nuclear models, Alpha and Beta Decays: Geiger – Nuttal law, Gammow's theory of alpha decay, Fermi's theory of  $\beta$ -decay. Nuclear Reactions: Nuclear Detectors.

**D) Solid State Physics:** Crystal Structure: Crystalline nature of matter, Crystal lattice, Unit Cell, Elements of symmetry, Crystal systems, Bravais lattices, Miller indices, Simple crystal structures. X-ray Diffraction: Bragg's law, Laue's method and powder method. Nano materials, Superconductivity, superconductors,

### **Teaching Methodology (Marks: 20)**

- 1. The Nature of Science:** Nature and scope of science, Science, ideology and Society, Structure of Science (a) Substantive structure – Empirical knowledge, Theoretical Knowledge – (Facts, Concepts, hypothesis, theory, Principle Law), (b) Syntactic Structure of Science – Scientific inquiry, Processes of Science, Attitudes of inquiry.
- 2. The History and Development of Science:** A brief introduction to oriental and western science, Contribution of the following Scientists in the Development of Science: Aryabhatta, Bhaskara Charya, Aristotle, Copernicus, Newton, Einstein, C.V.Raman, Various organizations working for the development of science in India.

- 3. Aims and Values of teaching Physical Sciences:** Aims of teaching Physical Sciences, Values of teaching Physical Science, Correlation of Physics and with other subjects.
- 4. Objectives of teaching Physical Sciences:** Meaning and importance of objectives, Bloom's Taxonomy of Educational objectives, Specific / Behavioural objectives / (Instructional objectives), Critique on Bloom's Taxonomy.
- 5. Approaches and Methods of teaching Physical Sciences:** Inductive and Deductive Approaches, Micro Teaching, Team Teaching, Lecture Method, Lecture cum Demonstration Method, Historical Method, Heuristic Method, Project Method, Laboratory method, Problem Solving Method, Scientific Method, Multimedia Approach in Teaching Learning process, Programmed Learning, CAI and CAL.
- 6. Planning for effective instruction in Science:** Year Plan, Unit Plan, Lesson Plan, Learning experience, characteristics, classification, source and relevance.
- 7. Teaching Learning Material (TLM):** Characteristics and Importance of TLM, Classification and Types of TLM, Hardware and Software in TLM, TLM Principles to be followed, Edgar Dale's cone of learning experience.
- 8. Science laboratories:** Importance of Practical work in science, Planning of Science laboratories, Procurement, care and maintenance of laboratory equipment, Registers, Management of safety and science kits, Development of improvised Apparatus.
- 9. Physical Science Curriculum:** Principles of Curriculum Construction, Defects in the existing school science curriculum, Qualities of a good Science Text Book.
- 10. Non-formal Science Education:** Science Clubs, Science Fairs – purposes, levels, organization, advantages, Science Library, Role of NGOs and State in popularizing Science.
- 11. Evaluation:** Concept and Process of Evaluation, Tools of Evaluation, Preparation of Scholastic Achievement Test (SAT), Analysis and interpretation of Scores.

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**Paper II – Chemistry Syllabus**

**Part – I**

**General Knowledge and Current Affairs (Marks: 10)**

**Part – II**

**Perspectives in Education (Marks: 10)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), Rashtriya Aveshekar Abhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badi pelusthondi, Badi ki Vasta, Mavuru – Mana Badi, Vidyanjali, Swacha Patasala, Inspire, Kalavutsav.

**4. Acts / Rights:**

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

5. **National Curriculum** - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.

6. **National Educational Policy-2020**

### Part - III

## Educational Psychology (Marks: 10)

### 1. Development Of Child

- Development, Growth & Maturation — Concept & Nature
- Principles of development and their education implication
- Factors influencing Development — Biological, Psychological, Sociological, emotional.
- Dimensions of Development and their interrelationships — Physical & Motor, Cognitive, Emotional, Social, Moral, Language relating to Infancy, early Childhood, late Child hood, dolescence.
- Understanding Development — Piaget, Kohlberg, Chomsky, Carl Rogers, Erikson
- Individual differences — Infra & Inter Individual differences in the areas of Attitudes, Aptitude, Interest, Habits, Intelligence and their Assessment.
- Development of Personality — Concept, Factors effecting development of personality, self concept.
- Adjustment, Behavioural problems, Mental Health, Defense mechanism.
- Methods and Approaches of Child Development — Introspection, Observation, Interview, Case study, Experimental, Cross sectional and Longitudinal
- Developmental tasks and Hazards

### 2. Understanding Learning

- Concept, Nature of Learning — input — process — outcome
- Factors of Learning — Personal and Environmental
- Approaches to Learning and their applicability—Behaviorism (Skinner, Pavlov, Thorndike) Constructivism (Piaget, Vygotsky), Gestalt(Kohler, Koffka) and Observational (Bandura)
- Dimensions of Learning — Cognitive, Affective and Performance.
- Motivation and Sustenance —its role in learning.
- Memory & Forgetting
- Transfer of Learning

### 3. Pedagogical Concerns

- Teaching and its relationship with learning and learner.
- Learners in Contexts: Situating learner in the socio-political and cultural context
- Children from diverse contexts—Children With Special Needs (CWSN), Inclusive Education.
- Understanding of pedagogic methods — Enquiry based learning, Project based learning, Survey, Observation and Activity based learning, Cooperative and collaborative learning.
- Individual and Group learning: Issues and concerns with respect to organizing learning in class room like Study habits, Self learning and Learning to learn skills.
- Organizing learning in heterogeneous class room groups — Socio-economic background, Abilities and Interest.
- Paradigms of organizing Learning-Teacher centric, Subject centric and Learner centric.
- Theory of instruction – Bruner
- Teaching as Planned activity — Elements of Planning
- Phases of Teaching — Pre active, Interactive and Post active

- General and Subject related skills, competencies required in teaching and attributes of good facilitator.
- Learning resources — Self, Home, School, Community, Technology.
- Class room Management: Role of student, teacher, Leadership style of teacher, Creation of non threatening learning environment, Managing behaviour problems, Guidance & Counselling, Punishment and its legal implications, Rights of a child, Time Management.
- Distinction between Assessment for Learning & Assessment of Learning, School based Assessment, Continuous & Comprehensive Evaluation : Perspective & Practice.
- Understanding teaching & learning in the context of NCF, 2005 & Right to Education Act, 2009.

#### **Part - IV**

### **Content (Marks: 50) ( Present 3 years Bachelor Degree course in A.P. State ( Telugu Academy Text Books )**

#### **I. General Chemistry:**

Atomic Structure and elementary quantum mechanics: Blackbody radiation, Planck's radiation law, photoelectric effect, Compton Effect, de Broglie's hypothesis, Heisenberg's uncertainty principle. Postulates of quantum mechanics, Schrodinger wave equation and a particle in a box, energy levels, wave functions and probability densities, Schrodinger wave equation for H-atom, Separation of variables, Radial and angular functions, hydrogen like wave functions, quantum numbers and their importance Chemical Bonding: Valence bond theory, Hybridization, VB theory as applied to  $\text{ClF}_3$ ,  $\text{BrF}_5$ ,  $\text{Ni}(\text{CO})_4$ ,  $\text{XeF}_2$ , Dipole moment, Molecular orbital theory. Stereochemistry of carbon compounds: Stereo isomerism, Stereo isomers: enantiomers, diastereomers - Conformational and Configurational isomerism-Conformational, Enantiomers, Optical activity asymmetric and dissymmetric molecules, General Principles of Inorganic qualitative analysis: Molecular symmetry: Concept, types, The symmetry operations of a molecule form a group, Theory of quantitative analysis Principles of volumetric, gravimetric analysis, introductory treatment to Pericyclic Reactions.

#### **II. Inorganic chemistry:**

Periodicity and Periodic Properties, s,p,d,and f block elements Theories of bonding in metals: Valence bond theory, Explanation of metallic properties and its limitations, Free electron theory, thermal and electrical conductivity of metals, limitations, Band theory, formation of bands, explanation of conductors, semiconductors and insulators. Metal carbonyls and related compounds – EAN rule, classification of metal carbonyls, structures and shapes of metal carbonyls of V, Cr, Mn, Fe, Co and Ni, Metal nitrosyls and metallocenes Coordination Chemistry: IUPAC nomenclature, bonding theories, Isomerism in coordination compounds – structural isomerism and stereo isomerism, stereochemistry of complexes with 4 and 6 coordination numbers. Spectral and magnetic properties of metal complexes, Reactivity of metal complexes, Stability of metal complexes: Hard and soft acids bases (HSAB): Classification, application of HSAB principles – Stability of compounds / complexes. Bioinorganic chemistry: Essential elements, biological significance of Na, K, Mg, Ca, Fe, Co, Ni, Cu, Zn and chloride, Metalloporphyrins – haemoglobin, structure and function, Chlorophyll, structure and role in photosynthesis.

#### **III. Organic Chemistry:**

Structural theory in Organic Chemistry, Bond polarization, Alicyclic hydrocarbons Cycloalkanes Benzene and its reactivity, Concept of resonance, resonance energy, Heat of hydrogenation, heat of combustion of Benzene, mention of C-C bond lengths and orbital picture of Benzene, Concept of aromaticity, Huckel's rule. Application to

Benzenoid (Benzene, Napthalene) and Non Benzenoid compounds (cyclopropenyl cation, cyclo pentadienyl anion and tropylium cation) Reactions. General mechanism of electrophilic substitution, mechanism of nitration, Friedel Craft's alkylation and acylation, Orientation of aromatic substitution. Definition of ortho, para and meta directing groups. Ring activating and deactivating groups with examples (Electronic interpretation of various groups like NO<sub>2</sub> and Phenolic).

Orientation effect of (i) Amino, methoxy and methyl groups (ii) Carboxy, nitro, nitrile, carbonyl and Sulfonic acid groups. (iii). Halogens (Explanation by taking minimum of one example from each type). Halogen compounds, Hydroxy compounds -Polyhydroxy compounds: Carbonyl compounds, Physical and chemical properties Base catalysed reactions with mechanism: Aldol, Cannizzaro reaction, Perkin reaction, Benzoin condensation, Haloform reaction, Knoevenagel reaction. Oxidation of aldehydes: BaeyerVilliger oxidation of ketones with mechanism. Reduction: Wolf Kishner reduction, MPV reduction, reduction with LiAlH<sub>4</sub> and NaBH<sub>4</sub> Analysis of aldehydes and ketones. Carboxylic acids and derivatives physical and chemical properties, Active methylene compounds Acetoacetic esters: Malonic ester: Synthetic applications, inter conversion: Nitrogen compounds: Carbohydrates: Amino acids and proteins

#### **IV. Physical Chemistry:**

Liquid state: Intermolecular forces, structure of liquids (qualitative description). Structural differences between solids, liquids and gases, Liquid crystals, the meso morphic state, Classification of liquid crystals into Smectic and Nematic, Differences between liquid crystal and solid/liquid, Application of liquid crystals as LCD devices. Solid state: Classification of solids, crystalline state, seven crystal systems, close packed structure of solids, nearest neighbours, ionic radii, simple ionic compounds, point defects. Solutions: Liquid-liquid - ideal solutions, Raoult's law. Ideally dilute solutions, Henry's law. Non-ideal solutions, Vapour pressure, composition and vapour pressure-temperature curves. Azeotropes-HCl-H<sub>2</sub>O, ethanol-water systems and fractional distillation, partially miscible liquids-phenol-water, trimethylamine-water, nicotine-water systems. Effect of impurity on consulate temperature, immiscible liquids and steam distillation, Nernst distribution law, Calculation of the partition coefficient, Applications of distribution law; Catalysis: Types of catalysis, Electrochemistry: Electro chemical cells and cell reactions. Electrode potentials, Nernst equation and its relation to DG, Electrochemical series, emf of galvanic cells, Faraday's laws of electrolysis: Electro lytic conductance, specific, equivalent and molar conductance, Kohlrausch's law: concentration cells. Chemical kinetics: Rates of chemical reactions, order of reactions- first, second, third and zero order reactions with examples, effect of temperature on rate of reaction, Thermodynamics.

#### **V. Chemistry And Industry:**

Physico Chemical methods of analysis, Separation techniques Spectrophotometry, spectroscopy, Spectral interpretation, Drugs, formulations, pesticides and green chemistry, Macromolecules, Material Science and catalysis

#### **Teaching Methodology (Marks: 20)**

1. The Nature of Science: Nature and scope of science, Science, ideology and Society, Structure of Science (a) Substantive structure – Empirical knowledge, Theoretical Knowledge – (Facts, Concepts, hypothesis, theory, Principle Law), (b) Syntactic Structure of Science – Scientific inquiry, Processes of Science, Attitudes of inquiry.



2. The History and Development of Science: A brief introduction to oriental and western science, Contribution of the following Scientists in the Development of Science: Aryabhata, BhaskaraCharya, Aristotle, Copernicus, Newton, Einstein, C.V.Raman, Various organizations working for the development of science in India.
3. Aims and Values of teaching Physical Sciences: Aims of teaching Physical Sciences, Values of teaching Physical Science, Correlation of Physics and with other subjects.
4. Objectives of teaching Physical Sciences: Meaning and importance of objectives, Bloom's Taxonomy of Educational objectives, Specific /Behavioral objectives / (Instructional objectives), Critique on Bloom's Taxonomy.
5. Approaches and Methods of teaching Physical Sciences: Inductive and Deductive Approaches, Micro Teaching, Team Teaching, Lecture Method, Lecture cum Demonstration Method, Historical Method, Heuristic Method, Project Method, Laboratory method, Problem Solving Method, Scientific Method, Multimedia Approach in Teaching Learning process, Programmed Learning, CAI and CAL.
6. Planning for effective instruction in Science: Year Plan, Unit Plan, Lesson Plan, Learning experience, characteristics, classification, source and relevance.
7. Teaching Learning Material (TLM): Characteristics and Importance of TLM, Classification and Types of TLM, Hardware and Software in TLM, TLM Principles to be followed, Edgar Dale's cone of learning experience.
8. Science laboratories: Importance of Practical work in science, Planning of Science laboratories, Procurement, care and maintenance of laboratory equipment, Registers, Management of safety and science kits, Development of improvised Apparatus.
9. Physical Science Curriculum: Principles of Curriculum Construction, Defects in the existing school science curriculum, Qualities of a good Science Text Book.
10. Non-formal Science Education: Science Clubs, Science Fairs – purposes, levels, organization, advantages, Science Library, Role of NGOs and State in popularizing Science.
11. Evaluation: Concept and Process of Evaluation, Tools of Evaluation, Preparation of Scholastic Achievement Test (SAT), Analysis and interpretation of Scores.

**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC-2022**  
**Category of Post: PGT**  
**Paper II – BOTANY Syllabus**

**Part – I**

**General Knowledge And Current Affairs (Marks: 10)**

**Part – II**

**Perspectives in Education (Marks: 10)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Ethics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), Rashtriya Aveshekar Abhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badi pelusthondi, Badi ki Vasta, Mavuru – Mana Badi, Vidyanjali, Swacha Patasala, Inspire, Kalavutsav.

#### 4. Acts / Rights:

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

#### 5. National Curriculum - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.

#### 6. National Educational Policy-2020

### Part - III

#### Educational Psychology (Marks: 10)

##### 1. Development Of Child

- Development, Growth & Maturation — Concept & Nature
- Principles of development and their education implication
- Factors influencing Development — Biological, Psychological, Sociological, emotional.
- Dimensions of Development and their interrelationships — Physical & Motor, Cognitive, Emotional, Social, Moral, Language relating to Infancy, early Childhood, late Childhood, adolescence.
- Understanding Development — Piaget, Kohlberg, Chomsky, Carl Rogers, Erikson
- Individual differences — Intra & Inter Individual differences in the areas of Attitudes, Aptitude, Interest, Habits, Intelligence and their Assessment.
- Development of Personality — Concept, Factors effecting development of personality, self concept.
- Adjustment, Behavioural problems, Mental Health, Defense mechanism.
- Methods and Approaches of Child Development — Introspection, Observation, Interview, Case study, Experimental, Cross sectional and Longitudinal
- Developmental tasks and Hazards

##### 2. Understanding Learning

- Concept, Nature of Learning — input — process — outcome
- Factors of Learning — Personal and Environmental
- Approaches to Learning and their applicability—Behaviorism (Skinner, Pavlov, Thorndike) Constructivism (Piaget, Vygotsky), Gestalt(Kohler, Koffka) and Observational (Bandura)
- Dimensions of Learning — Cognitive, Affective and Performance.
- Motivation and Sustenance —its role in learning.
- Memory & Forgetting
- Transfer of Learning

##### 3. Pedagogical Concerns

- Teaching and its relationship with learning and learner.
- Learners in Contexts: Situating learner in the socio-political and cultural context
- Children from diverse contexts—Children With Special Needs (CWSN), Inclusive Education.
- Understanding of pedagogic methods — Enquiry based learning, Project based learning, Survey, Observation and Activity based learning, Cooperative and collaborative learning.

- Individual and Group learning: Issues and concerns with respect to organizing learning in class room like Study habits, Self learning and Learning to learn skills.
- Organizing learning in heterogeneous class room groups — Socio-economic background, Abilities and Interest.
- Paradigms of organizing Learning-Teacher centric, Subject centric and Learner centric.
- Theory of instruction – Bruner
- Teaching as Planned activity — Elements of Planning
- Phases of Teaching — Pre active, Interactive and Post active
- General and Subject related skills, competencies required in teaching and attributes of good facilitator.
- Learning resources — Self, Home, School, Community, Technology.
- Class room Management: Role of student, teacher, Leadership style of teacher, Creation of non threatening learning environment, Managing behaviour problems, Guidance & Counselling, Punishment and its legal implications, Rights of a child, Time Management.
- Distinction between Assessments for Learning & Assessment of Learning, School based Assessment, Continuous & Comprehensive Evaluation: Perspective & Practice.
- Understanding teaching & learning in the context of NCF, 2005 & Right to Education Act, 2009.

#### Part - IV

**Content (Marks: 50) ( Present 3 years Bachelor Degree course in A.P. State ( Telugu Academy Text Books )**

1. Classification of Plant Kingdom
2. Branches of Botany
3. Bacteria and Viruses: General account of Viruses: Characteristics, Chemistry, Ultra structure, Composition, Replication, Bacteriophage, Transmission of plant viruses. General account of Bacteria: Characteristics, Shape, Ultra structure of the cell, Nutrition, Reproduction, Classification and Importance.
4. Algae: Introduction and general classification of algae, criteria for the classification, thallus organisation of algae, economic importance of algae, general characteristics structure, reproduction, pigments, phylogeny, life cycles of Chlamydomonas, Volvox, Oedogonium, Chara, Vaucheria, Ecocarpus, Polysiphonia.
5. Fungi: General characteristics of fungi, occurrence, thallus structure of fungi, modes of nutrition, reproduction, phylogeny of these types: Albugo, Mucor, Penicillium, Puccinia, Peziza, Alternaria. General account of Lichens, Economic importance of Fungi.
6. Bryophyta: General characteristics of Bryophyta, sporophyte, evolution in Bryophyta, classification of Bryophyta, structure, reproduction in Marchantia, Anthoceros, Polytrichum.
7. Pteridophyta: General characteristics of Pteridophyta, classification of Pteridophyta, structure, reproduction in Rhynia, Lycopodium, Equisetum and Marsilea.
8. Palaeobotany: Origin & evolution of land plants, Homospory, Heterospory, origin

- of seed, Telome theory and Origin of Sporophyte.
9. Gymnosperms: Characteristics and classification of Gymnosperms, Morphology, Life History & affinities of Cycas, Pinus & Gnetum.
  10. Angiosperms: Taxonomy of Angiosperms, Systems of Classification: Hutchinson, Takhtajan, Pressey, Engler & Prantl, Bentham & Hooker. Principles of taxonomy: Criteria of classification, categories of classification, International code of Botanical Nomenclature, principles, typification, citation & authority. Study of the following families with reference to their characteristics, economic importance and attributes etc. a) Annonaceae b) Malvaceae c) Fabaceae d) Caesalpinaceae e) Mimosaceae f) Cucurbitaceae g) Asclepiadaceae h) Euphorbiaceae i) Orchidaceae j) Rubiaceae k) Poaceae
  11. Cell Biology and Anatomy: Ultra structure of cell and cell organelles, cell wall structure, tissue and tissue systems, meristems, shoot & root apices, normal & anomalous secondary growth.
  12. Cytology, genetics and Evolution: Mitosis and Meiosis; Chromosome (Morphology, Structure, importance); concept of gene laws of inheritance; gene action; genetic code; linkage and crossing over; general account of mutations; polyploidy and its role in crop improvement, Concept of Primitive flower; development of anther and ovule; general account of embryosac and types of embryo; fertilization; endosperm morphology and types; polyembryony and apomixes.
  13. Ecology: Ecosystem: Concept, biotic & abiotic components, ecological pyramids, productivity. Biogeochemical cycles (Carbon, Nitrogen, Sulphur, Phosphorous cycles), Plant succession – Xerosere and Hydrosere Bio-diversity and conservation.
  14. Physiology  
Absorption and translocation of water; Transpiration and stomatal behaviour; Absorption and uptake of Ions, Donnan's equilibrium; Role of micronutrients in plant growth; Translocation of solutes; Photosynthesis (Light and dark reaction, Red drop, Emerson effect, Two pigment systems, Mechanism of Hydrogen transfer, Calvin cycle, Enzymes of CO<sub>2</sub> reduction, Hatch and slack cycle, C<sub>4</sub> cycle, CAM Pathway, Factors affecting photosynthesis, Pigments.); Respiration (Glycolysis, Pentose phosphate shunt, structure and role of mitochondria, Kreb's cycle, Oxidative Phosphorylation, Photorespiration, respiratory quotient, fermentation, Pasteur effect, factors affecting.); The enzymes (Nomenclature and classification, structure and composition, Mode of enzyme action, Factors affecting.); Nitrogen metabolism and bio synthesis of proteins, Nitrogen fixation, Nitrogen cycle, (Physical and Biological); Nitrogen assimilation, Amino acid metabolism, Plant Hormones(Auxins, Gibberellins, Cytokinins, Abscissic acid – general account.)
  15. Economic Botany: Utilisation of plants, food plants, fibres, vegetable oils, wood yielding plants, spices, medicinal plants, beverages and rubber.
  16. Recent aspects of Botany: Genetic Engineering; Plant tissue culture; Social forestry; Environmental Pollution (Water, Soil, Air) Health hazards and control, Biotechnology.

### **Teaching Methodology (Marks: 20)**

1. The Nature & Scope of Science: A brief introduction of Oriental and Western Science, Nature of Science, Scope of Science, Substantive and Syntactic Structure of Science.
2. Aims and Values of Teaching Biological Sciences: Aims of teaching Biological Sciences, Values of teaching Biological Sciences.
3. Objectives of Teaching Biological Sciences: Importance of Objectives of Teaching Biological Sciences, Bloom's Taxonomy of Educational Objectives and limitations, Writing Instructional Objectives and Specifications.
4. Approaches and Methods of Teaching Biological Sciences: Inductive Approach and Deductive Approach, Methods of Teaching 1. Lecture Method, 2. Lecture cum Demonstration Method, 3. Heuristic Method, 4. Project Method, 5. Experimental Method, 6. Laboratory Method.
5. Planning for effective Instruction: Year Plan, Unit Plan, Lesson Plan – Herbartian and Bloom's Approach, Criteria for Evaluation of Lesson Plan. Self Evaluation and Peer Evaluation, Learning experiences – Characteristics, Classification, Sources and Relevance, Teaching – Learning Material and Resources in Biological Sciences.
6. Science Laboratories: Importance of Practical work in Biological Sciences, Planning Science Laboratory, Procurement, Care and Maintenance of Laboratory Equipment, Maintenance of different Registers, Safety and First aid, Development of Improvised Apparatus.
7. Science Curriculum: Principles of Curriculum Construction, Defects in the existing School Science Curriculum, Correlation of Biological Sciences with other School Subjects, Qualities of a good Biological Science Text-book.
8. Biological Science Teacher: Qualities of a good Biological Sciences Teacher, Roles and Responsibilities.
9. Non-formal Science Education: Science club, Eco-club, Blue-club, Red ribbon club, Science fairs – Objectives, levels of organizations, importance, Science Laboratories, Role of NGO'S and State in popularizing science.
10. Evaluation: Concept and process of Measurement and Evaluation, Continuous Comprehensive Evaluation, Tools of Evaluation, Preparation of Scholastic Achievement Test (SAT), Analysis and interpretation of scores.

**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC-2022**

**Category of Post: PGT**  
**Paper II – ZOOLOGY Syllabus**

**Part – I**

**GENERAL KNOWLEDGE AND CURRENT AFFAIRS (Marks: 10)**

**Part – II**

**PERSPECTIVES IN EDUCATION (Marks: 10)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
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- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.
- Health and Physical Education
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- Programmes and Projects – APPEP, DPEP, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), Rashtriya Aveshekar Abhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badi pelusthondi, Badi ki Vasta, Mavuru – Mana Badi, Vidyanjali, Swacha Patasala, Inspire, Kalavutsav.

#### **4. Acts / Rights:**

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- Child Rights
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#### **5. National Curriculum - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.**

#### **6. National Educational Policy-2020**

### **Part - III**

#### **Educational Psychology (Marks: 10)**

##### **1. Development of Child**

- Development, Growth & Maturation — Concept & Nature
- Principles of development and their education implication
- Factors influencing Development — Biological, Psychological, Sociological, emotional.
- Dimensions of Development and their interrelationships — Physical & Motor, Cognitive, Emotional, Social, Moral, Language relating to Infancy, early Childhood, late Childhood, adolescence.
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##### **2. Understanding Learning**

- Concept, Nature of Learning — input — process — outcome
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- Memory & Forgetting
- Transfer of Learning



### 3. Pedagogical Concerns

- Teaching and its relationship with learning and learner.
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- Paradigms of organizing Learning-Teacher centric, Subject centric and Learner centric.
- Theory of instruction – Bruner
- Teaching as Planned activity — Elements of Planning
- Phases of Teaching — Pre active, Interactive and Post active
- General and Subject related skills, competencies required in teaching and attributes of good facilitator.
- Learning resources — Self, Home, School, Community, Technology.
- Class room Management: Role of student, teacher, Leadership style of teacher, Creation of non threatening learning environment, Managing behaviour problems, Guidance & Counselling, Punishment and its legal implications, Rights of a child, Time Management.
- Distinction between Assessment for Learning & Assessment of Learning, School based Assessment, Continuous & Comprehensive Evaluation: Perspective & Practice.
- Understanding teaching & learning in the context of NCF, 2005 & Right to Education Act, 2009.

#### Part - IV

**Content (Marks: 50) ( Present 3 years Bachelor Degree course in A.P. State  
( Telugu Academy Text Books )**

1. Classification of Animal Kingdom
2. Non Chordata

Classification of Non Chordata General characteristics and features of

Protozoa	: Polystomella, Trypanozoma type study.
Porifera	: Canal system, histology & Spicules.
Cnidaria	: Obelia type study,
Platihelmenthes	: Fasciola type study,
Nematodes	: Ascaris
Annelida	: Earth worm, Leech type study
Arthropoda	: Palaemon type study

Mollusca	: Snail type study
Echinodermata	: Star fish type study

### 3. Chordata

#### Classification of Chordata

General characteristics and type study of the following with reference to skeletal system, respiratory system, circulatory system and nervous system.

Pisces	: Scoliodon
Amphibia	: Frog
Reptilia	: Calotes
Aves	: Pigeon
Mammalia	: Rabbit

4. Cell Biology: Ultra structure of the cell: Plasma membrane, mitochondria, Golgi bodies, Nucleus, Endoplasmic Reticulum, Ribosomes, Chromosomes and their fine structure, Mitosis and Meiosis, DNA & RNA and Genetic Code, Protein Synthesis, tissues.
5. Genetics: Mendel's Law of inheritance – critical view, Linkage, crossing-over, sex-linked inheritance, mutations, inborn errors of Metabolism, human Genetics and genetic engineering.
6. Physiology: Vitamins, Enzymes, Carbohydrates, Proteins and Lipids metabolism, Osmoregulation, Thermo-regulation, Excretion in vertebrates, muscle contraction, Nerve Impulse, vertebrate hormones and Mammalian reproduction.
7. Animal Behaviour: Taxis, reflexes, instinctive behaviour, motivated behaviour, learning imprinting, habituation, classical conditioning, instrumental conditioning, trial and error learning, physiology and phylogeny of learning, biological rhythms – circadian, lunar and circannual rhythms.
8. Developmental Biology: Gastrulation in Frog and Chick, Development of Chick upto 24 hrs, Foetal membranes of chick, Placenta in Mammals (Formation and types)
9. Evolution: Origin of Life – Modern concepts, theories of Evolution, Isolation, Speciation, Natural Selection, Hardy Weinberg's Law, population genetics and evolution, adaptations, evolution of Man. Zoogeographical realms of the world.
10. Ecology: Concept of Ecosystem, Biogeochemical cycles, influence of environmental factors on animals, energy flow in Ecosystem, food chains & trophic levels, community ecology. Ecological Succession, Environmental Pollution – Air, water, land, noise, radio active, thermal and visual; Effects of pollution on ecosystem, prevention of pollution.
11. Wild Life in India and Conservation of Wild Life.

#### Teaching Methodology (Marks: 20)

1. The Nature & Scope of Science: A brief introduction of Oriental and Western Science, Nature of Science, Scope of Science, Substantive and Syntactic Structure of Science.
2. Aims and Values of Teaching Biological Sciences: Aims of teaching Biological Sciences, Values of teaching Biological Sciences.
3. Objectives of Teaching Biological Sciences: Importance of Objectives of Teaching Biological Sciences, Bloom's Taxonomy of Educational Objectives and limitations, Writing Instructional Objectives and Specifications.

4. Approaches and Methods of Teaching Biological Sciences: Inductive Approach and Deductive Approach, Methods of Teaching 1. Lecture Method, 2. Lecture cum Demonstration Method, 3. Heuristic Method, 4. Project Method, 5. Experimental Method, 6. Laboratory Method.
5. Planning for effective Instruction: Year Plan, Unit Plan, Lesson Plan – Herbartian and Bloom’s Approach, Criteria for Evaluation of Lesson Plan. Self Evaluation and Peer Evaluation, Learning experiences – Characteristics, Classification, Sources and Relevance, Teaching – Learning Material and Resources in Biological Sciences.
6. Science Laboratories: Importance of Practical work in Biological Sciences, Planning Science Laboratory, Procurement, Care and Maintenance of Laboratory Equipment, Maintenance of different Registers, Safety and First aid, Development of Improvised Apparatus.
7. Science Curriculum: Principles of Curriculum Construction, Defects in the existing School Science Curriculum, Correlation of Biological Sciences with other School Subjects, Qualities of a good Biological Science Text-book.
8. Biological Science Teacher: Qualities of a good Biological Sciences Teacher, Roles and Responsibilities.
9. Non-formal Science Education: Science club, Eco-club, Blue-club, Red ribbon club, Science fairs – Objectives, levels of organizations, importance, Science Laboratories, Role of NGO’S and State in popularizing science.
10. Evaluation: Concept and process of Measurement and Evaluation, Continuous Comprehensive Evaluation, Tools of Evaluation, Preparation of Scholastic Achievement Test(SAT), Analysis and interpretation of scores.

**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC-2022**  
**Category of Posts: PGT**  
**Paper – II - Social Studies - Syllabus**

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**PART - I**

**I. General Knowledge And Current Affairs (Marks: 10)**

**PART - II**

**II. Perspectives In Education (Marks: 10)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – More Value and Professional Ethics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, SarvaSikshaAbhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), RashtriyaMadhyamikaSikshaAbhiyan(RMSA), RashtriyaAveshekarAbhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badipelusthondi, BadikiVasta, Mavuru – ManaBadi, Vidyanjali, SwachaPatasala, Inspire, Kalavutsav.

#### 4. Acts / Rights:

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

5. **National Curriculum** - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.

#### 6. **National Educational Policy-2020**

### PART - III

### **III. Educational Psychology – 10 Marks**

#### 1. Development Of Child

- Development, Growth & Maturation — Concept & Nature
- Principles of development and their education implication
- Factors influencing Development — Biological, Psychological, Sociological, emotional.
- Dimensions of Development and their interrelationships — Physical & Motor, Cognitive, Emotional, Social, Moral, Language relating to Infancy, early Childhood, late Child hood, adolescence.
- Understanding Development — Piaget, Kohlberg, Chomsky, Carl Rogers, Erikson
- Individual differences — Intra & Inter Individual differences in the areas of Attitudes, Aptitude, Interest, Habits, Intelligence and their Assessment.
- Development of Personality — Concept, Factors effecting development of personality, self concept.
- Adjustment, Behavioural problems, Mental Health, Defense mechanism.
- Methods and Approaches of Child Development — Introspection, Observation, Interview, Case study, Experimental, Cross sectional and Longitudinal
- Developmental tasks and Hazards

#### 2. Understanding Learning

- Concept, Nature of Learning — input — process — outcome
- Factors of Learning — Personal and Environmental
- Approaches to Learning and their applicability—Behaviorism (Skinner, Pavlov, Thorndike) Constructivism (Piaget, Vygotsky), Gestalt(Kohler, Koffka) and Observational (Bandura)
- Dimensions of Learning — Cognitive, Affective and Performance.
- Motivation and Sustenance —its role in learning.
- Memory & Forgetting
- Transfer of Learning

#### 3. Pedagogical Concerns

- Teaching and its relationship with learning and learner.
- Learners in Contexts: Situating learner in the socio-political and cultural context
- Children from diverse contexts—Children With Special Needs (CWSN), Inclusive Education.
- Understanding of pedagogic methods — Enquiry based learning, Project based learning, Survey, Observation and Activity based learning, Cooperative and collaborative learning.

- Individual and Group learning: Issues and concerns with respect to organizing learning in class room like Study habits, Self learning and Learning to learn skills.
- Organizing learning in heterogeneous class room groups — Socio-economic background, Abilities and Interest.
- Paradigms of organizing Learning-Teacher centric, Subject centric and Learner centric.
- Theory of instruction – Bruner
- Teaching as Planned activity — Elements of Planning
- Phases of Teaching — Pre active, Interactive and Post active
- General and Subject related skills, competencies required in teaching and attributes of good facilitator.
- Learning resources — Self, Home, School, Community, Technology.
- Class room Management: Role of student, teacher, Leadership style of teacher, Creation of non threatening learning environment, Managing behaviour problems, Guidance & Counselling, Punishment and its legal implications, Rights of a child, Time Management.
- Distinction between Assessment for Learning & Assessment of Learning, School based Assessment, Continuous & Comprehensive Evaluation : Perspective & Practice.
- Understanding teaching & learning in the context of NCF, 2005 & Right to Education Act, 2009.

#### PART - IV

#### **IV. Content: (50 Marks)**

**Classes VI –Intermediate Syllabus: (Difficulty level upto 3 years graduation in concerned subjects)**

#### **Theme - I: Diversity on the Earth**

Reading, Making and Analysis of Maps -different types of maps - directions -scale - conventional symbols use in maps-measuring heights , distances - Contour Lines- Representation of relief features on maps- uses of maps- past and present-Maps Down the Ages-reading of thematic maps-atlas-globe-a model -the earth grid system- Using an atlas to find latitude and longitude of places, time.

Our Universe, the Sun and the Earth –energy form sun- temperature - The evolution of the Earth- earth movements – seasons- regions on earth-condition -Movements of the Earth’s-crust - Internal Structure of the Earth- Realms of the earth

Lithosphere- ‘first order’ landforms- oceans and continents-diverse features -Second Order landforms-mountains, plains and plateaus- diverse people living in different kinds of landforms in India and Andhra Pradesh -plate tectonics-Volcanoes-earth quakes –disaster management- Mining and minerals- new trends in mining and minerals.- renewable and non-renewable –Indian relief features –location-geological background-major relief divisions in India-and Andhra Pradesh

Hydrosphere- Hydrological cycle-water sources-oceans-relief of the oceans- salty-movements -oceans as resource waves, tides, currents-ocean as resource –Indian, Andhra

Pradesh river and water resources –ground water -tanks-recharging ground water-floods- Rational and equitable Use of water-Andhra Pradesh water , land and trees protection act .

Atmosphere- structure of atmosphere Pressure Belts and Planetary Winds- Coriolis effect- winds- weather and climate –factors which influence weather and climate –seasons in india- types of rainfall- Global Warming and Climate Change-anthropological global warming - IPCC- Impact of climate change on India-

Biosphere- Natural vegetation- different kinds of forests- human society and environment- pollution and effects-depletion of resources- using and protecting forests

### **Theme - II: Production Exchange and Livelihoods**

From Gathering Food to Growing food – The Earliest People - Agriculture in Our Times - Trade in Agricultural Produce -Trade in Agricultural Produce – agricultural in India, Andhra Pradesh-types of farming-cropping season-crops-importance of agriculture –green revolution –effects- dry land agriculture –Food security – nutrition status –PDS-sustainable development and equity -handicrafts and handlooms- industrial revolution- beginning of industrial revolution- Sources of Energy and Industrial Development-urbanisation and slums- production in a factory Livelihood and Struggles Urban Workers - Minerals and Mining - Impact of Technology on Livelihoods –technology changes in agricultural, industrial ,service sectors -importance of transport system–transport system in India, traffic education – Andhra Pradesh- money and banking- finance literacy-credits and finance system- prices and cost of living - Role of government in regulating prices-The Government Budget and Taxation –direct and indirect taxes-industries in India-new policies for industries -service activities in India -growth and development-comparing of different countries and states- sectors of economy-employment- organized and unorganized sectors –employment in India- population –people and settlement-urbanisation in India , urbanisation problems-people and migration –types of migrations –village economy –Globalization –factors –impact-fair globalization-other issues.

### **Theme -III: Political Systems and Governance**

Community Decision Making in a Tribe - Emergence of Kingdoms and Republics – Mahajanapadas- First Empires – mौरyan empire- ashoka –kingdoms and empires in the deccan-New Kings and Kingdoms(between seventh and twelfth centuries )-mahamudghazni – the cholas and other- The Kakatiyas - Emergence of a Regional Kingdom- The Kings of Vijayanagara-srikirshnadevaraya-Mughal Empire- Establishment of British Empire in India- the revolt 1857-after revolt-british rule in india- Landlords and Tenants under the British and the Nizam - National Movement - The Early Phase 1885-1919 -National Movement - The Last Phase 1919-1947 –national movement in India – partition – integration of states- Independent India 1947-77 – state reorganisation-social and economic change-foreign policy – wars –emergency- independent India 1977-2000

Changing cultural tradition in Europe- the ancient , medieval world in Europe-renaissance-humanism-realism-the new concept of human beings-debates within Christianity –Beginning of the modern science-exploration of sea routes –democratic and nationalist revolution in 17<sup>th</sup>,18<sup>th</sup> and 19<sup>th</sup> centuries – the glorious revolution- American independence – frenchrevolution- rise of nationalism in Europe-the revolts 1830-1848 –Germany unification-unification of Italy-industrialisation and social change –social protest movements – luddism-socialism-women movements – colonialism in latin America , Asia , Africa- impact of colonialism in India- adivasi revolts-the Britishgovernment’s industrial policy-labourers’ stuggles-the world between 1900-1950-world war I and world war II- causes – the treaty of Versailles – the league of nationas-consequences of the world war-Russian socialist revolution-the great depression- Nazism –post war world and India – UNO-Cold war-non alignment movement- the growth of nationalism in the middle east-peace movement and collapse of USSR-National liberation movements in the colonies .

Democratic Government - Village Panchayats - Local Self – Government in Urban Areas – Making of Laws in the State Assembly-Implementation of Laws in the District - The Indian Constitution -the making of independent India ‘s constitution –Parliamentary system – federalism- the constitution today- Elections system in India – electoral literacy- Parliament and Central Government - Law and Justice –Supreme court –high court- other courts – worldly expansion of democracy- the democracy an evolving idea.

#### **Theme -IV: Social Organisation and Inequities**

Diversity in Our Society - Towards Gender Equality –caste discrimination and the struggle for equalities –livelihood and struggles of Urban workers –workers rights –abolishment of zamindari system-poverty-Rights –Human rights and fundamental rights- Women rights , protection acts – children rights – RTI-RTE-legal service authority- LokAdalat –consumer rights - social movements in our time

#### **Theme - V: Religion and Society**

Religion and Society in Early Times – hunter- gatherers-early farmers and herdrers-Indus valley civilisation –Vedas- Jainism ,Buddhism-flok religion-bhakthi-nathpanthis ,siddhas,yogis.- sufism-kabir – gurunank-Devotion and Love towards God –Hindu religion-Bhakti movement-Christianity-Islam- the belief in supreme god-social and religious reform movements-Christian missionaries and oriental scholars-Bramhasamaj- AryaSamaj-Swami Vivekananda –reforms and education among muslims –social reformers in andrapradesh-social reforms and caste system-narayana guru-jyothiraophule – drbrambedker-understanding Secularism-

#### **Theme -VI: Culture and Communication**

Language, Writing and Great Books - Sculptures and Buildings –Performing Arts and Artistes in Modern times-burrakatha – tholubommalata –bharatanatyam-Film and print media-role of media in freedom movement- sports Nationalism –other games and their status.



## Intermediate Syllabus:

### Geography:

General Geography-Definition and scope of Geography – Branches of Geography-Geography as an integrating Discipline and as Spatial Science with physical, biological and social sciences.

Solar System-Origin and Evolution of solar system-Rotation and Revolution of the Earth and their effects-Latitudes and Longitudes-Standard Time and International Date line.

The Earth - Interior of the Earth-Wegner's theory of continental drift -Major Rock types and their characteristics.

Geomorphology -Major landforms: Mountains, Plateaus and Plains-Geomorphic Process: Weathering - Physical and Chemical Weathering-Landforms associated with wind and river – Erosional and depositional.

Climatology -Climate: Elements of weather and climate-Atmosphere: Composition and structure of atmosphere -Insolation: Insolation and Heat Budget of the Planet Earth-Temperature: Factors influencing Temperature, Vertical and horizontal distribution of temperature Pressure- Global pressure belts Winds Planetary winds, Seasonal and Local winds-Precipitation: Forms and types of rain fall (Convictional, Orographic and Cyclonic rain fall).

Bio geography -Biomes of the world- Equatorial, Tropical and Temperate -Biodiversity and Conservation -Concept of Ecosystem and Ecological Balance- Oceanography, Hydrology and Natural hazards

Oceanography-Divisions of the Ocean floor- Continental shelf, Continental slope, Deep Sea plains and Ocean deeps-Ocean Temperatures- Vertical and horizontal distribution-Ocean Salinity Definition, vertical and horizontal distribution-Oceanic Movements: Waves, Tides and Currents, (Currents of Atlantic, Pacific and Indian Ocean )

Hydrology-Elements of Hydrological cycle: Precipitation, evaporation, evapo-transpiration, run off, infiltration and recharge -Hydrological Cycle.

Natural Hazards-Causes and Spatial distribution of floods, droughts, cyclones, Tsunamis, Earthquakes and landslides Global Warming and its consequences-Disaster Management in India-Human Geography : Definition, Content and scope- Man and Environment: Definition, Content, Classification of environment-Environmental impact World Population : Growth, Factors influencing, density and distribution

Human activities - Primary, Secondary and tertiary activities-Resources - Definition, Classification and Conservation-Agriculture -Definition, Types, food crops (Rice and wheat) Nonfood crops (Cotton, Sugarcane) and Plantation crops-(Rubber, tea and coffee) their Significance, Conditions - for cultivation, production and distribution.

Definition and Classification (Metallic - Iron), non Metallic – bauxite and (fuel minerals - coal and petroleum) Industries - Location factors, types of industries -Agro – based (Cotton textiles) Forest based (Paper mills) -Mineral based (Iron and steel) - Chemical based (Fertilizers)- Transportation -Road ways, Railways, Water ways and Air ways - Rail ways-Intensive net work rail way, Regional rail-ways and Trans continental railways - Water ways-Major sea ports: London, San Francisco- Rio De Janeiro, Cape Town, Kolkata and Sydney-Major Air ports- Tokyo, Paris, Chicago, Bogota and -Wellington

Physical features of India - Major features - Northern mountains, Indo – Gangetic-plains, Peninsular plateau of India and coastal plains- Major rivers of India - Perennial rivers- Indus, Ganges and Brahmaputra-Non Perennial rivers- Narmada, Tapi, Mahanadi, -Godavari, Krishna, Pennar and Cauvery - Climate of India - Cold weather season: Temperature Rainfall & Pressure distribution Hot weather season- Temperature, Rainfall & Pressure distribution South west monsoon season- Temperature, Rainfall & Pressure distribution North east

monsoon season: Temperature, Rainfall & Pressure distribution-Natural vegetation of India-Types of vegetation based on rainfall and their-distribution. Evergreen forest, deciduous forest, scrub -forest,& Thorny forest -Soils - Definition, factors for formation, types and - their distribution.

Population- Growth trends from 1901 to 2001, Distribution based-on density, problems of high population- Irrigation-Types of irrigation: canals, wells and tanks. Major -multipurpose projects. Bakranangal, Hirakud, -Damodarvalley corporation and Nagarjuna Sagar-Agriculture: Cropped area, production and distribution of -selected crops: Rice, Wheat, Millets, Coffee, Tea, Sugarcane, Cotton, Jute and tobacco; Problems of Indian agriculture.

Minerals- Production and distribution of coal, petroleum, iron, mica and manganese, bauxite. Industries- Location factors growth and distribution of iron and steel, cotton textile and ship building industries- Transportation-Means of Transport – Road ways, Rail ways, Water - ways and Air ways; Major ports of India – Mumbai, -Cochin, Kandla, Kolkata, Visakhapatnam and Chennai.

Geography of Andhra Pradesh: Location, Physiography and Climate, Population.

### **History:**

What is History: Definition - Scope – Sources – Historiography – Relationship with other Social Sciences – Impact of Geography on history - Relevance of History.

Ancient Civilizations and Culture : Pre Harappan Cultures - Harappan Civilization – Script, town planning, society, economy and culture - Vedic age and Post Vedic Culture.

Early States, Empires and Economy : Early States – 16 Mahajanapadas - Rise of Magadha – Economy and Agriculture – urbanization.

Early Societies, and religious movements: Early Societies – Social differences – Religious movements – Jainism – Buddhism and other sects Ajivikas and Lokayats.

Polity, Economy, Society and Culture between 3rd to 7th Century A.D. :Mauryas - Kushanas – Guptas – Pushyabhuties – Origin of feudalism – Polity, Society, Economy and Culture.

Deccan and South India up to 8th A.D: Sangam age – Satavahanas – Pallavas – Chalukyas – Rastrakutas – Cholas – Polity, Society, Economy and culture.

Age of Delhi Sultanate: Sources/Travellers Accounts - Arab Invasions – Turkish invasions – Delhi Sultanate – Polity, Economy, Society and Culture.

Age of Mughals: Chronicles/Sources – Mughal rule – Babur, Humayun, Shershah, Akbar, Jahangir, ShahJahan and Aurangazeb - Polity, Economy, Society and culture - Disintegration - Maratas, Sikhs.

Bhakti and Sufi Traditions 8 A.D. 16 Century A.D: Prevailing Religious Traditions and beliefs in the Society – Bhakti Saints and their Preachings – Sufism – Main features and their impact.

Deccan and South India 8th A.D – 16 the A.D : Sources - Kakatiyas – Vijyanagara – Bahamanis – Qutbshahis and Asafjahis – a brief survey.

India under the Colonial Rule : Sources - Portuguese – Dutch – French – English East India Company – Era of Governor Generals and their Polices – Reforms of Viceroy – 1857 Mutiny.

Indian National Movement: Background to National Movement, Socio-religious movement – rise of Nationalism – Vande Mataram movement – Home rule movement – Emergence of Mahatma Gandhi and leadership – Revolutionary movement, Subhash Chandra Bose – Poona Pact Quit India movement – Partition of India – Emergence of Independent India.

The Modern World- Beginning of Modern Age, Renaissance, Development in Science, The Reformation Movement, Rise of Nation States, Struggle against Absolute Monarchies - Capitalism and Industrial Revolution -The Revolutionary Movements -The Glorious Revolution, The American war of Independence, The French Revolution of 1789 -

.Nationalist Movements: Rise and fall of Napoleon, French Revolution of 1830 and the 1848 Revolt, Unification of Germany and Italy, Socialist Movements – Rise of Working class, Paris Commune of 1871

Imperialism: Factors in the rise of Imperialism, Forms and Methods of Imperialism, Scramble for Africa and Asia

Contemporary World: The First World war, League of Nations, The Russian Revolution of 1905 and 1917 -The World upto World War II: Rise of Fascism and Nazism, Militarism in Japan, U.S.A. and U.S.S.R. after World War I, Turkey after World War I, Failure of League of Nations, Spanish Civil war, World war II, The Nationalist Movements in Asia and Africa, Emergence of Latin America

The World after World War II: Formation of Military Blocks, Role of independent Nations of Asia and Africa in the World Affairs, Non-Alignment Movement, Role of UNO in preserving World Peace, Problems of Disarmament and Nuclear Weapons, Prominent Personalities of the World.

### **Civics:**

Scope and Significance of political Science - Introduction to Civics and Political Science, Origin and Evolution, Meaning, Definitions, What do we study? Why do we study?

State - State – Meaning, Definitions, Elements, Relation of state with other Institutions – Society, Association, Government.

Nationalism - Nation, Nationality, Nationalism, Factors contributing for Nationality, Is India a Nation? Meaning, Forms (Traditional and modern)

law -Meaning, Definitions, Classification, Law and morality, Rule of Law. Liberty and Equality – Meaning, Definitions, Types, Safeguards, Liberty – Equality.

Rights and Responsibilities– Meaning, Definitions, functions Forms, Relationship between Rights and Responsibilities, Human Rights

Justice - Justice – Meaning, Forms of Justice, Social Justice.

Citizenship - Meaning, Definitions, Methods of Acquiring, Citizen – Alien , Loss of Citizenship, Hindrances to Good Citizenship, Universal Citizenship

Democracy- Meaning, Definitions, features, types, merits, devices, future

Secularism -Meaning, Secular State, Western Model, Indian Model, Why India was made a Secular State? Criticism of Indian Secularism

Constitution– Meaning, Definitions, features, Classification

Government - Unitary, Federal, Parliamentary, Presidential, Theory of Separation of Powers, Organs of Government

Indian Constitution: Indian National Movement- Government of India Acts – 1909, 1919 & 1935-

Salient features of Indian Constitution

Fundamental Rights & Directive Principles of State Policy- Fundamental Rights- Directive Principles of state Policy- Fundamental Duties

Union Government- Union Executive – President of India - Vice – President of India - Prime Minister & Council of Ministers

Indian Parliament - Lok Sabha-Composition – Powers and functions- Rajya Sabha: Composition – Powers and functions

Parliamentary Committees- Public Accounts Committee – Estimates -Committee – Committee on Public Undertakings

Union Judiciary - Supreme Court of India – Composition- Powers and Functions of Supreme Court -of India - Judicial Review

State Government- State Executive – Governor- Powers and Functions-Chief Minister - Powers and Functions- Council of Ministers

State Legislature-Legislative Assembly- Composition – Powers and Functions- Legislative Council-Composition – Powers and Functions - Legislative Committees: Public Accounts Committee – Estimates-Committee and Ethics Committee

State Judiciary-High Court – Composition- Powers and Functions of High Court- District Courts: Composition – Powers and Functions.

Union – State Relations - Legislative Relations-Administrative Relations - Financial Relations.

Local Government - Rural Local Government-Panchayati Raj Institutions – 73rd Constitution Amendment Act- Urban Local Government: Municipalities - Municipal Corporation – 74th Constitution Amendment Act- District Collector: Role in Local Governments

India's Foreign Policy - Determinants of Foreign Policy- Basic features of India's Foreign Policy-

South Asian Association for Regional Cooperation (SAARC)

United Nation Organization (UNO)-Origin of UNO-Principal Organs of UNO- Achievements and failures of UNO

Contemporary Trends and Issues- Globalization- Terrorism-Corruption.

### **Economics:**

Origin and meaning of Economics - Definitions of Economics; Adam Smith, Alfred Marshall, Lionel Robbins, Paul Samuelson, & Jacob Viner- Concept of Economics – Micro & Macro Economics Deductive and Inductive Method, Static and Dynamic Analysis, Positive and Normative Economics. Goods: (Free, Economic, Consumer, Producer, and Intermediary), Wealth, Income, Utility, Value, Price, wants and welfare.

Theory of Consumption - Cardinal and Ordinal Utility, the law of Diminishing Marginal Utility – Limitations – Importance; law of Equi-Marginal Utility Limitations and – Importance of the Law, Indifference Curve Analysis – Properties and Consumer's Equilibrium.

Theory of Demand - Meaning – Demand Function – Determinants of Demand, Demand Schedule – Demand Curve, Law of Demand, Exceptions to Law of Demand - Causes for the downward slope of the demand curve, Types of Demand – Price Demand, Income Demand, and Cross Demand- Elasticity of Demand – Meaning and Types – Price Elasticity, and Income Elasticity and Cross Elasticity – Price Elasticity-Types; Measurement of Price Elasticity of Demand- Point Method. Arc Method, Total Outlay Method. Determinants of Elasticity of Demand; Importance of Elasticity of Demand.

Theory of Production - Meaning - Production Function – Factors of Production; Short-run and Long-run Production Function; Law of variable proportions - Law of returns to scale; Economies of Scale - Internal and External- Supply – Supply Function - Determinants of Supply — Law of Supply- Cost Analysis – Basic Concepts of Costs- (Money, Real, Opportunity, Fixed and Variable, Total, Average and Marginal costs)- Revenue Analysis – Revenue under perfect and imperfect competition.

Theory of Value - Meaning and Classification of Markets – Perfect competition – features – price determination- Short-run and Long-run equilibrium of a firm and Industry- Imperfect Competition – Monopoly – Price Determination – Price-Discrimination-Monopolistic Competition- Features- Meaning of Oligopoly – Duopoly.

Theory of Distribution - Determination of Factor Prices – Marginal Productivity Theory - Rent – Ricardian theory of Rent – Modern theory - Quasi Rent – Transfer earnings - Wages – Meaning and types of wages – Money and Real wages - Interest- Meaning – Gross and Net interests - Profits – Meaning – Gross and Net profits.

National Income : Definitions of National Income and Concepts- Measurement of National Income – Census of Product Method – Census of Income Method – Census of Expenditure Method- Methods of Measuring National Income in India; Problems and importance

Macro Economic Aspects - Classical theory of Employment –J.B. Say Law of Markets-Limitations – J.M. Keynes Effective Demand- Public Economics - Public Revenue – Public Expenditure – Public debt – Components of Budget.

Money, Banking and Inflation - Money – Definitions and Functions of money – Types of Money - Banking – Commercial Banks – Functions; Central Bank – Functions – Reserve Bank of India – Net Banking- Inflation – Definitions – Types – Causes and Effects of inflation – Remedial Measures.

Statistics for Economics - Meaning, Scope and Importance of Statistics in Economics with Diagrams (Bar diagrams and Pie diagrams)-Measures of central tendency – Mean, Median, Mode.

Economic Growth And Development - Differences Between Economic Growth and Development classification of the world countries - Indicators of Economic development - Determinants of Economic Development - Characteristic features of Developed Countries - Characteristic features of Developing countries with special reference to India

Population and Human Resources Development - Theory of Demographic Transition - World Population - Causes of rapid Growth of population in India - Occupational distribution of population of India - Meaning of Human Resources Development - Role of Education and Health in Economic Development- Human Development Index (HDI)

National Income - Trends in the growth of India's National Income - Trends in distribution of national income by industry Origin - Share of Public Sector and Private Sector in Gross Domestic Product - Share of Organised and Un-organised Sector in Net Domestic Product - Income Inequalities - Causes of Income Inequalities - Measures to control income inequalities -Unemployment in India – Poverty - Micro Finance-Eradication of Poverty

Agriculture Sector-Importance of agriculture in India - Features of Indian agriculture - Agriculture Labour in India - Land utilization pattern in India - Cropping pattern in India - Organic Farming -Irrigation facilities in India - Productivity of agriculture - Land holdings in India - Land reforms in India - Green Revolution in India - Rural credit in India - Rural Indebtedness in India - Agricultural

Marketing - Industrial Sector - Significance of the Indian Industrial Sector in Post –Reform Period -Industrial Policy Resolution 1948 - Industrial Policy Resolution 1956 - Industrial Policy Resolution 1991 - National Manufacturing Policy- Disinvestment - National Investment Fund (NIF) -Foreign Direct Investment -Special Economic Zones (SEZs) - Causes of industrial backwardness in India -Small Scale Enterprises (MSMEs) - Industrial Estates - Industrial Finance in India - The Industrial Development under the Five Year Plans in India.

Tertiary Sector - Importance of Services Sector -India's Services Sector - State-Wise Comparison of Services - Infrastructure Development - Tourism - Banking and Insurance - Communication -Science and Technology - Software Industry in India

Planning And Economic Reforms - Meaning of Planning -NITI Ayog -Five Year Plans in India - XII Five Year Plan - Regional Imbalances - Role of Trade in Economic Development - Economic Reforms in India - GATT – WTO

Environment and Sustainable Economic Development - Environment - Economic Development -Environment and Economic Linkages. - Harmony between Environment & Economy

Economy Of Andhra Pradesh - History of Andhra Pradesh - Characteristic features of A.P. Economy -Demographic features - Occupational distribution of labour - Health Sector - Education -Environment - Agricultural sector - Industrial sector - Service and Infrastructure

sector - Information and Technology - Tourism -Andhra Pradesh and Welfare Programmes/  
Schemes

Economic Statistics - Measures of Dispersion - Definitions of Dispersion - Importance of  
Measuring Variation -Properties of a good measure of variation -Methods of Studying  
Variation - Measures of Dispersion for average - Lorenz Curve - Correlation -Index Numbers  
- Weighted Aggregation Method.

### **Methodology (Marks: 20)**

#### **1. Aims and objectives of learning Social Sciences**

- values through Social Sciences - learning objectives and illustrations - learning  
objectives in constructivist approach - Academic Standards

#### **2. School curriculum and resources in Social Sciences**

- NCF-2005, RTE-2009, SCF-2011 - syllabus – Learning Resources.

#### **3. Social Sciences as an integrating area of study: Context and concerns**

- Distinguishing between Natural and Social Sciences - Social Studies and various  
Social Sciences -contributions of some eminent Social Scientists

#### **4. Approaches and strategies for learning Social Sciences**

- collaborative learning approach - 5E learning model - problem solving approach -  
planning -concept mapping

#### **5. Community Resources and Social Sciences Laboratory**

#### **6. Tools and techniques of assessment for learning: Social Sciences**

7. Evaluation - CCE - assessment framework - assessment learning of students with  
specialneed

**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DES-2022**

**Category of Post: PGT**  
**Paper II – ECONOMICS Syllabus**

**Part – I**

**General Knowledge and Current Affairs (Marks: 10)**

**Part – II**

**Perspectives in Education (Marks: 10)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), Rashtriya Aveshekar Abhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badi pelusthondi, Badi ki Vasta, Mavuru – Mana Badi, Vidyanjali, Swacha Patasala, Inspire, Kalavutsav.

#### **4. Acts / Rights:**

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

#### **5. National Curriculum - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.**

#### **6. National Educational Policy-2020**

### **Part - III**

#### **Educational Psychology (Marks: 10)**

##### **1. Development of Child**

- Development, Growth & Maturation — Concept & Nature
- Principles of development and their education implication
- Factors influencing Development — Biological, Psychological, Sociological, emotional.
- Dimensions of Development and their interrelationships — Physical & Motor, Cognitive, Emotional, Social, Moral, Language relating to Infancy, early Childhood, late Child hood, dolescence.
- Understanding Development — Piaget, Kohlberg, Chomsky, Carl Rogers, Erikson
- Individual differences — Infra & Inter Individual differences in the areas of Attitudes, Aptitude, Interest, Habits, Intelligence and their Assessment.
- Development of Personality — Concept, Factors effecting development of personality, self concept.
- Adjustment, Behavioural problems, Mental Health, Defense mechanism.
- Methods and Approaches of Child Development — Introspection, Observation, Interview, Case study, Experimental, Cross sectional and Longitudinal
- Developmental tasks and Hazards

##### **2. Understanding Learning**

- Concept, Nature of Learning — input — process — outcome
- Factors of Learning — Personal and Environmental
- Approaches to Learning and their applicability—Behaviorism (Skinner, Pavlov, Thorndike) Constructivism (Piaget, Vygotsky), Gestalt(Kohler, Koffka) and Observational (Bandura)
- Dimensions of Learning — Cognitive, Affective and Performance.
- Motivation and Sustenance —its role in learning.
- Memory & Forgetting
- Transfer of Learning



### 3. Pedagogical Concerns

- Teaching and its relationship with learning and learner.
- Learners in Contexts: Situating learner in the socio-political and cultural context
- Children from diverse contexts—Children With Special Needs (CWSN), Inclusive Education.
- Understanding of pedagogic methods — Enquiry based learning, Project based learning, Survey, Observation and Activity based learning, Cooperative and collaborative learning.
- Individual and Group learning: Issues and concerns with respect to organizing learning in class room like Study habits, Self learning and Learning to learn skills.
- Organizing learning in heterogeneous class room groups — Socio-economic background, Abilities and Interest.
- Paradigms of organizing Learning-Teacher centric, Subject centric and Learner centric.
- Theory of instruction – Bruner
- Teaching as Planned activity — Elements of Planning
- Phases of Teaching — Pre active, Interactive and Post active
- General and Subject related skills, competencies required in teaching and attributes of good facilitator.
- Learning resources — Self, Home, School, Community, Technology.
- Class room Management: Role of student, teacher, Leadership style of teacher, Creation of non threatening learning environment, Managing behaviour problems, Guidance & Counselling, Punishment and its legal implications, Rights of a child, Time Management.
- Distinction between Assessment for Learning & Assessment of Learning, School based Assessment, Continuous & Comprehensive Evaluation : Perspective & Practice.
- Understanding teaching & learning in the context of NCF, 2005 & Right to Education Act, 2009.

#### Part - IV

#### **Content (Marks: 50) (Present 3 years Bachelor Degree course in A.P. State (Telugu Academy Text Books)**

1. Consumer Behaviour and Demand: Consumer's Equilibrium – Meaning and attainment of equilibrium through utility approach and Indifference approach, Demand, Market Demand, Determinants of Demand, Demand Curve, Movement along and Shifts in Demand Curve, Law of Demand, and its exceptions, Price, Elasticity of Demand, Measurement of Price Elasticity of Demand, Methods.
2. Producer Behaviour and Supply: Agents of Production, Production Function, Cost of Revenue – Meaning and Various types of Costs and revenue. Isoquants – Supply, Market Supply, Determinants of Supply, Supply Curve, Movement along shifts in Supply Curve. Price elasticity of Supply and its Measurement, Components and theories of Distribution. Welfare Economics – Pare to optimality, Private and Social Products, Consumer Surplus, Production Possibility Curve and

Opportunity Cost.

3. Forms of Market and Price Determination: Forms of Market – Meaning and features – Price determination under Perfect Competition, and Imperfect Competition – Monopoly, Duopoly, Monopolistic Competition, Oligopoly.
4. National Income and Related Aggregates: Macro Economics : Meaning, Circular flow of income, Concepts of GDP, GNP, NDP, NNP (at Market price and factor cost), National Disposable and Personal Disposable income – Measurement of National income.
5. Determination of income and Employment: Aggregate demand, Aggregate Supply and their Components. Propensity to consume and propensity to save. Involuntary Unemployment and full Employment. Determination of income and employment. Concept of Investment Multiplier and its working. Inflation: Meaning, Causes and remedies.
6. Money and Banking: Money – Meaning, evolution and functions – Classification of money –  $M_1$ ,  $M_2$ ,  $M_3$  &  $M_4$ . Central Bank – meaning and functions methods of credit control. Commercial Banks – Meaning and functions. Recent Significant reforms and issues in Indian Banking system.
7. Indian Public Finance; Salient Features of Indian Tax System – Direct and Indirect Taxes. Sources of Public revenue, GST, VAT – Tax and Expenditure Reforms. Government budget – Meaning and its components. Objectives of Government budget. Classification of receipts; Classification of expenditure. Types of budget – meaning and implications; Measures to control different deficits. Downsizing the role of Government.
8. International Economics: Theories of International trade, the basis of International Trade – Classical theories of Trade – Adam Smith, Ricardo; Neo – Classical Theories – Heckscher's opportunity Cost approaches; modern Theories of Trade – Heckscher and Ohlin Model; Factor Price Equalization Theorem; Rybczynski Theorem; Leontief's Paradox. Balance of Payments – Meaning and Components – Foreign Exchange rate – Meaning (Fixed and Flexible), Merits and demerits. IMF – the World Bank & its associates. WTO.
9. Concepts of Shares, debentures, SEBI, NSE, BSE and various indices.
10. A.P.Economy: State income: Sectoral Contribution, Population, Programmes initiated by the State Government towards Rural Development Programmes, Special Economic Zones, APIC in the process of industrial development of Andhra Pradesh.
11. Introduction and Collection, Organization of data: Meaning, Scope and importance of Statistics in Economics. Collection and Organization of data. Census of India and national Sample Survey Organization. Statistical Tools and Interpretation: Measures of Central Tendency, Measures of Dispersion, Measures of Correlation – Karl Pearson's Method, Spearman's rank correlation.
12. Economic Growth and Development – Concepts – Factors affecting economic growth – A brief introduction of the State of Indian Economy on the eve of independence. Common goals of Five Year plans, Major Controversies on Planning in India. Main Features, Problems and Policies of Agriculture, industry and Foreign Trade.

13. Economic activities from 1950 to 1990, Economic Reforms since 1991: Need and Main features, liberalization, Globalization and Privatization; an appraisal of LPG Policies.
14. Current Challenges facing Indian Economy: Poverty and Unemployment – Meaning and Types programmes for alleviation of poverty and Unemployment – Rural development; Key issues – Credit and Marketing – Role of Cooperatives; Agricultural Diversification; Alternative Farming – Organic Farming, Human Capital Formation. Growth of Education Sector in India.  
Employment: Opportunities and other related issues. Infrastructural Problems and Policies. Sustainable Economic Development: Meaning; Effects of Economic Development on Resources and Environment.
15. Sectors of Indian Economy, consumer rights, Infrastructure, Rural Development.

### **Teaching Methodology (Marks: 20)**

1. Social Studies – Meaning, Nature and Scope: Defining Social Studies, Main features of Social Studies, Social Studies and Social Sciences differentiated, Scope of Social Studies – Types of Subject material and learning experiences included in the study of Social Studies, Need and importance of Social Studies.
2. Values, Aims and Objectives of Teaching Social Studies: Values of teaching Social Studies, Aims of teaching Social Studies at Secondary Level, Instructional Objectives of teaching Social Studies, Relationship of instructional objectives with general aims and objectives of Social Studies, Taxonomy of Educational and instructional objectives, Writing objectives in behavioural terms.
3. Social Studies Curriculum: Social Studies as a Core subject, Principles of Curriculum Construction in Social Studies, Organization of subject matter – different approaches correlated, integrated, topical, concentric, unit and chronological.
4. Instructional Strategies in Social Studies: Techniques, devices and maxims, Different methods of teaching Social Studies - Story telling, lecture, source, discussion, project, problem, inductive, deductive, observation, assignment – socialized recitation, Team teaching, Supervised study.
5. Planning for Instruction: Developing teaching skills through Micro-teaching, Year Planning, Unit Planning, Lesson Planning.
6. Instructional Material and Resources: Text books, work books, Supplementary material syllabus, curriculum guides, hand books, Audio visual, Social Studies laboratory, library, clubs and museum, Utilizing community resources.
7. Social Studies Teacher: Qualities of a good Social Studies teacher, Roles and responsibilities.
8. Evaluation in Social Studies: Concept and purpose, Types of Evaluation, Evaluation as a continuous and comprehensive process, Different techniques of Evaluation, Preparation for Scholastic Achievement test.

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**SPL DSC-2022**  
**Category of Post: PGT**  
**Paper II – CIVICS Syllabus**

**Part – I**

**General Knowledge and Current Affairs (Marks: 10)**

**Part – II**

**Perspectives in Education (Marks: 10)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
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**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), Rashtriya Aveshekar Abhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badi pelusthondi, Badi ki Vasta, Mavuru – Mana Badi, Vidyanjali, Swacha Patasala, Inspire, Kalavutsav.

**4. Acts / Rights:**

- Right of Children to Free and Compulsory Education Act - 2009
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- Child Rights
- Human Rights.
- 5. **National Curriculum - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.**
- 6. **National Educational Policy-2020**

### **Part - III**

#### **Educational Psychology (Marks: 10)**

##### **1. Development Of Child**

- Development, Growth & Maturation — Concept & Nature
- Principles of development and their education implication
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- Dimensions of Development and their interrelationships — Physical & Motor, Cognitive, Emotional, Social, Moral, Language relating to Infancy, early Childhood, late Child hood, dolcescence.
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- Adjustment, Behavioural problems, Mental Health, Defense mechanism.
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- Developmental tasks and Hazards

##### **2. Understanding Learning**

- Concept, Nature of Learning — input — process — outcome
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- Theory of instruction – Bruner
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- Distinction between Assessment for Learning & Assessment of Learning, School based Assessment, Continuous & Comprehensive Evaluation : Perspective & Practice.
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#### **Part - IV**

**Content (Marks: 50) ( Present 3 years Bachelor Degree course in A.P. State ( Telugu Academy Text Books )**

#### **I.**

1. Concepts, Theories and Institutions:
    - a. Introduction: Definition, Scope and importance of political Science
    - b. State: Nation formation and its functions
    - c. Law: Sources of Law
    - d. Liberty and Equality: Their relationship
    - e. Kinds of rights
  2. Ideologies; Individualism, Anarchism, Fascism and Socialism
  3. Forms of Government
    - a. Democracy: Direct and Indirect
    - b. Unitary and Federal
    - c. Parliamentary and Presidential
- Organs of Government
- a. Legislature
  - b. Executive
  - c. Judiciary

#### **II. Indian Government and policies**

1. Evolution of Indian Constitution
2. Indian Federation: Centre State relations
3. Fundamental rights, duties, Constitutional remedies.
4. President: Election, Powers functions, Prime Minister and Council of Minister.
5. Parliament Composition Powers, Judicial review
6. Judiciary: Supreme Court, Powers, Judicial review.
7. Election commission: Electoral reforms, Voting Behaviour.

8. Local Government: 73<sup>rd</sup> and 74<sup>th</sup> Amendments.

### **III. Political Thought**

1. Indian Political Thought
  - a. Manu
  - b. Koutilya
  - c. Gandhi
  - d. Ambedkar

### **IV. Control over Administration**

1. Legislative control
2. Executive control
3. Judicial Control
4. Lok Pal
5. Lokayukta

### **V. Government and Politics in Andhra Pradesh**

1. Historical Background of the A.P.: Socio – Political Struggle in Hyderabad State
2. States Reorganization and Formation of Andhra Pradesh Party System: National and Regional Parties pressure Groups.

### **Teaching Methodology (Marks: 20)**

1. Social Studies – Meaning, Nature and Scope: Defining Social Studies, Main features of Social Studies, Social Studies and Social Sciences differentiated, Scope of Social Studies – Types of Subject material and learning experiences included in the study of Social Studies, Need and importance of Social Studies.
2. Values, Aims and Objectives of Teaching Social Studies: Values of teaching Social Studies, Aims of teaching Social Studies at Secondary Level, Instructional Objectives of teaching Social Studies, Relationship of instructional objectives with general aims and objectives of Social Studies, Taxonomy of Educational and instructional objectives, Writing objectives in behavioural terms.
3. Social Studies Curriculum: Social Studies as a Core subject, Principles of Curriculum Construction in Social Studies, Organization of subject matter – different approaches correlated, integrated, topical, concentric, unit and chronological.
4. Instructional Strategies in Social Studies: Techniques, devices and maxims, Different methods of teaching Social Studies - Story telling, lecture, source, discussion, project, problem, inductive, deductive, observation, assignment – socialized recitation, Team teaching, Supervised study.
5. Planning for Instruction: Developing teaching skills through Micro-teaching, Year Planning, Unit Planning, Lesson Planning
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**Paper II – COMMERCE Syllabus**

**Part – I**

**General Knowledge and Current Affairs (Marks: 10)**

**Part – II**

**Perspectives in Education (Marks: 10)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
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5. **National Curriculum** - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.

6. **National Educational Policy-2020**

### Part - III

#### **Educational Psychology (Marks: 10)**

##### **1. Development of Child**

- Development, Growth & Maturation — Concept & Nature
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- Understanding teaching & learning in the context of NCF, 2005 & Right to Education Act, 2009.

### Part - IV

**Content (Marks: 50) (Present 3 years Bachelor Degree course in A.P. State (Telugu Academy Text Books )**

#### **1. Business Studies And Management**

- Introduction to Business– Concepts, characteristics, objectives. Classification of business as industry and commerce. Distinctive features of business - Business, profession and employment. Choice of Form of Organization .Large Scale and Small Scale Business-.Assistance by Government to Small Scale Sector and Micro enterprises.
- Form of Business Organizations – Sole Proprietors, Joint Hindu Family, Partnership, Joint Stock Company and its formation, Cooperative organization.
- Business ownership– Private, public and Joint sector. Public Enterprises, Role-dynamics of Public Sector, Global Enterprises (Multinational Companies), Joint Ventures.

- Business Services – banking, insurance, transportation, warehousing, communication, Impact of Technology on Business Services.
- Trade: Internal Trade - Retail and Wholesale trade, Emerging modes of business-franchising, E-business and Outsourcing. International Business– Export-Import – Procedure and documentation, EPZ/SEZ. International Trade Institutions and Agreements – WTO, UNCTAD, World-Bank, IMF, GATS (General Agreement of Trade in Services).
- Business Finance: Sources – owners and borrowed fund, Sources of raising finance, Equity and preference Shares, GDR( Global Deposit Receipts), ADR ( American Deposit Receipts), Debentures, Bonds – Retained Profit, Public Deposits, Loan from Financial Institutions and commercial banks, Credit-rating and rating agencies, Trade credit, Micro-credit.
- Social Responsibility of Business, Business Ethics, Corporate Governance, Environment protection.
- Management – concept, objectives, nature of management as Science, Art and Profession, levels, Principles of Management general and scientific.
- Business Environment – meaning, importance, dimensions, changing business environment–special reference to liberalization, privatization and globalization, Business - a Futuristic vision.
- Management Functions – Planning, organizing, staffing, directing, controlling and coordination
- Business Finance: Financial Management – meaning, scope, role and objectives, financial planning, Capital structure, leverage, Fixed and working capital – meaning and factors affecting its requirements.
- Financial Markets – Money Market-nature, instruments, Capital Market-Primary and secondary, Stock exchange, NSEI, OTCEI, Procedures, SEBI.
- Human Resource Management– meaning , importance, man-power estimation , Recruitment and selection, Training and development , Compensation, Performance Evaluation
- Marketing – meaning, functions and role, Levels of Marketing, Changing facets of marketing, Product-mix, Models of Marketing.
- Organizational Behaviors: Individual behaviors, Motivation–concepts and applications, Personality perception, Learning and attitude, Leadership and its approaches, Communication, Group dynamics.
- Emerging Trends in Management – Business Process Reengineering, Total Quality Management, Quality Circles, Benchmarking, Strategic Management, Knowledge Management.
- Consumer Protection – Meaning, importance, consumers’ rights, Consumers’ responsibilities, Consumer awareness and Legal redressal with special reference to consumer Protection Act, Role of consumer organization and NGOs.

## **2. Financial Accounting And Financial Statement Analysis**

- Accounting: Meaning, objectives, qualitative characteristics of Accounting information, Accounting Principles, Accounting concepts, Accounting standards, Cash and Accrual Basis of Accounting.

- Accounting Standards – growing importance in global accounting environment  
– International Accounting Standards (IAS) – International Financial Reporting Standards (IFRS) – US Generally Accepted Accounting Principles (GAAP).
- Process of Accounting :Voucher, transaction ,Accounting Equation, Rules of Debit and Credit, Book of original entry-Journal and Special Purpose Books, Ledger ,posting from Journal and subsidiary books, Balancing of Accounts, Trial Balance and Rectification of Errors .Bank Reconciliation Statement.
- Accounting for depreciation, Provisions and Reserves ,Bills of Exchange, Non-Profit Organization , Partnership Firms - Reconstitution of Partnership (Admission, Retirement ,Death and Dissolution), Account of Incomplete Records (Single entry, Hire Purchase & Instalment), Consignment and Joint ventures.
- Accounting of Joint stock Companies: Share capital types of shares, accounting for issue, allotment forfeiture and re-issue of shares. Debentures – types, issue and method of redemption. Final Accounts of Sole proprietor and Joint Stock Companies. Emerging trends of presentation of Final Accounts.  
Valuation of Good will, Liquidation, Amalgamation & Reconstruction. Bank Accounts and Accounts of Insurance Companies.  
Accounts of Government Companies.
- Accounting for liquidation.
- Financial Statement Analysis: Meaning, significance, limitation .Tools for Financial Statement Analysis-comparative statements, common size statements, Trend analysis, accounting ratios.
- Funds Flow Statement and Cash Flow Statement: Meaning, objectives, preparation as per revised standard issued by ICAI.
- Computers In Accounting: Introduction to Computers and Accounting Information System, Application of Computers in Accounting, Automation of Accounting process, designing accounting reports, MIS reporting, data exchange with other information system. Readymade, customized and tailor made Accounting Systems.
- Accounting and Database Management System –Meaning, concept of entity and relationship in an accounting system, Data Base Management System (DBMS) in accounting.
- Inflation accounting and Accounting for Human Resource of an Organization and Social Responsibility.

**Teaching Methodology (Marks: 20)**

1. Social Studies – Meaning, Nature and Scope: Defining Social Studies, Main features of Social Studies, Social Studies and Social Sciences differentiated, Scope of Social Studies – Types of Subject material and learning experiences included in the study of Social Studies, Need and importance of Social Studies.
2. Values, Aims and Objectives of Teaching Social Studies: Values of teaching Social Studies, Aims of teaching Social Studies at Secondary Level, Instructional Objectives of teaching Social Studies, Relationship of instructional objectives with general aims and objectives of Social Studies, Taxonomy of Educational and instructional objectives, Writing objectives in behavioural terms.

3. Social Studies Curriculum: Social Studies as a Core subject, Principles of Curriculum Construction in Social Studies, Organization of subject matter – different approaches correlated, integrated, topical, concentric, unit and chronological.
4. Instructional Strategies in Social Studies: Techniques, devices and maxims, Different methods of teaching Social Studies - Story telling, lecture, source, discussion, project, problem, inductive, deductive, observation, assignment – socialized recitation, Team teaching, Supervised study.
5. Planning for Instruction: Developing teaching skills through Micro-teaching, Year Planning, Unit Planning, Lesson Planning.
6. Instructional Material and Resources: Text books, work books, supplementary material syllabus, curriculum guides, hand books, Audio visual, Social Studies laboratory, library, clubs and museum, Utilizing community resources.
7. Social Studies Teacher: Qualities of a good Social Studies teacher, Roles and responsibilities.
8. Evaluation in Social Studies: Concept and purpose, Types of Evaluation, Evaluation as a continuous and comprehensive process, Different techniques of Evaluation, Preparation for Scholastic Achievement test



**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC -2022**

**ART**

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1. G.K& current Affairs -	-	05M
2. Perspectives in Education	-	05M
3. Educational Psychology	-	05M
4. Language ability (Telugu)	-	15M
5. Content& Methodologies	-	70M
<b>Total</b>	-	<b>100 M</b>

**PART - I**

**I. General Knowledge And Current Affairs (Marks: 05)**

**PART - II**

**II. Perspectives In Education (Marks: 05)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Eathics in Education.

- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, SarvaSikshaAbhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan (RMSA), RashtriyaAveshekarAbhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badipelusthondi, BadikiVasta, Mavuru – ManaBadi, Vidyanjali, SwachaPatasala, Inspire, Kalavutsav.

#### 4. Acts / Rights:

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

#### 5. National Curriculum - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.

#### 6. National Educational Policy-2020

PART - III

### III. Educational Psychology – 05Marks

- 1. Development of Child:** Development, Growth & Maturation – Concept & Nature. Principles of development and their education implication. Factors influencing Development – Biological, Psychological, Sociological, emotional. Dimensions of Development and their interrelationship – Physical & Motor, Cognitive, Emotional, Social, Moral, Language relating to Infancy, early Childhood, late Child hood, Adolescence. Understanding Development – Piaget, Kohlberg, Chomsky, Carl Rogers, Erikson.
- 2. Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
- 3. Learning:**Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation – Children with special need – Inclusive Education.
- 4. Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

## PART –IV

### **Language Ability (Telugu): (15 Marks)**

1) (3వ తరగతి నుండి 8వ తరగతి వరకు గల ఆంధ్రప్రదేశ్ తెలుగు వాచకాలలో పాఠ్యభాగ విషయాలు)

- A) కవి పరిచయాలు
- B) పాత్రలు
- C) ఇతి వృత్తాలు
- D) సందర్భాలు
- E) నేపథ్యాలు
- F) విద్యా ప్రమాణాలు

2) పదజాలం: -

- A) అర్థాలు
- B) పర్యాయపదాలు
- C) నానార్థాలు
- D) వ్యుత్పత్త్యర్థాలు
- E) జాతీయాలు
- F) సామెతలు - వివరణ, గుర్తించడం.
- G) పొడుపు కథలు

3) భాషాంశాలు:

- A) విభక్తి ప్రత్యయాలు
- B) ఔపవిభక్తికాలు
- C) పారిభాషిక పదాలు - ((ద్రుత ప్రకృతికాలు, కళలు, ఆమ్రేడితం, సంధి, వచనాలు, కాలాలు, లింగాలు, సమాసం, ఆగమం, ఆదేశం, బహుళం)
- D) సంధులు - తెలుగు సంధులు- (అత్వ, ఇత్వ, ఉత్వ, యడాగమ, సరళాదేశ, ఆమ్రేడిత, ద్వీరుక్తకార, గసడదవాదేశ సంధులు.)  
సంస్కృత సంధులు- (సవర్ణద్విర్లు, గుణ, యణాదేశ, వృద్ధి సంధులు.)
- E) సమాసాలు - (ద్వంద్వ, ద్వీగు, తత్పురుష సమాసాలు)
- F) ఛందస్సు - గణవిభజన, గణాల గుర్తింపు
- G) అలంకారాలు -  
వృత్త్యనుప్రాస, ఛేకానుప్రాస, అంత్యానుప్రాస (శబ్దాలంకారాలు) ఉపమా, ఉత్పేక్ష, అతిశయోక్తి (అర్థాలంకారాలు). అలంకారాలు గుర్తించుట, లక్ష్య లక్షణ సమన్వయం చేయుట.
- H) వాక్యాలు- (ఆశ్చర్యార్థక, విద్యర్థక, నిషేధార్థక, అనుమత్యర్థక, సామర్థ్యార్థక, సందేహార్థక, ఆశీర్వాదార్థక, ప్రార్థనార్థక, ప్రశ్నార్థక, హేత్యుర్థక, కర్తరి, కర్మణి వాక్యాలు)



## PART –V

### **Content and Methodology – 70Marks**

#### **Drawing**

##### I. Principles, Techniques, and Materials used in Drawing:

1. Pencils (Black & White and Colour)
2. Pastels
3. Charcoal sticks
4. Sketch Pens

##### II. Subjects

1. Drawing from Nature (Leaves, Flowers, Trees, Birds, Animals, etc.)
2. Object Drawing (Household objects like Jars, Bottles, Bowls, etc.)

#### **Painting**

##### I. Materials used in Painting

- |                              |                          |                                     |
|------------------------------|--------------------------|-------------------------------------|
| 1. Handmade paper            | 2. Oil Colour Sheets     | 3. Canvas boards                    |
| 4. Cloth for Fabric painting | 5. Water Colours         | 6. Oil Colours                      |
| 7. Acrylic Colours           | 8. Fabric Colours        | 9. Palette Knives for colour mixing |
| 10. Brushes                  | 11. Water Colour Palette |                                     |

##### II. Subjects

- |                                  |                      |
|----------------------------------|----------------------|
| 1. Land Scene Painting           | 2. Still life        |
| 3. Composition (Memory Painting) | 4. Portrait Painting |

#### **Basic Knowledge in Colour Theory**

#### **Applied Arts**

##### I. Materials Used

- |                   |                |                   |
|-------------------|----------------|-------------------|
| 1. Poster Colours | 2. Indian Ink  | 3. Drawing Sheets |
| 4. Ivory Card     | 5. Mount Board |                   |

##### II. Subjects

1. Different types of lettering (Roman, Gothic) in Telugu and English.
2. Poster Design
3. Geometrical Designs
4. Creative Design (without using Geometrical instruments)

#### **Sculpture**

##### I. Materials Used

- |         |                         |
|---------|-------------------------|
| 1. Clay | 2. Readymade Paper Pulp |
|---------|-------------------------|

##### II. Subject

1. Clay modelling from Nature like Birds, Animals, Flowers, Fruits, Trees, Human Figures etc.
2. Geometrical: 3D forms like Cube, Sphere, Pyramid etc.
3. Creative Abstract Forms

## **Art History**

1. Pre Historic Art forms from India (Rock Paintings of Bhimbhethka, etc)
2. Harappa and Mohenjodaro Civilization and Art & Culture
3. Andhra Pradesh State Logos and Symbols : Present and Past
4. Basic knowledge of famous Artists Example:
  - a) Michealangelo
  - b) Leonardo Da Vinci
  - c) Vincent Vangogh
  - d) Salvador Dali
  - e) Pablo Picasso
  - f) Raja Ravi Varma
  - g) M F Husain
  - h) Damerla Rama rao
  - i) VaddadhiPapaiah
  - k) Sanjeevdev

## **General knowledge about Worldfamous paintings and sculptures**

1. Monalisa
2. Ajanta Paintings
3. Ellora and famous Temple Sculptures of India
4. Traditional Indian miniature paintings
5. Contemporary (Modern) Indian Art
6. European Art and Artists

## **Psychology**

1. Methods and advantages of Educational Psychology
2. Laws of learning
3. Types of Intelligence
4. Intelligence Quotient
5. Personality Traits, Factors responsible

## **Philosophy**

1. Study of relationship between Philosophy and Education
2. Aims of Education
3. Universal free and Compulsory Education
4. Use of Audio visual aids for teaching
5. Importance of work experience in Education

## **Methods of Teaching**

1. Factors of Teaching and learning
2. Principles (Maxims) of Teaching
3. Steps in lesson planning
4. Methods of Teaching
5. Assessment and Evaluation

## **Curricular and Co-Curricular Activities**

1. Importance of Curriculum
2. Importance of Co-Curricular Activities on the Campus such as Workshops and Seminars, Conferences, Exchange Programmes, Art Competitions

**Government of Andhra Pradesh**  
**Department of School Education**  
**State Council of Educational Research & Training**  
**SPL DSC -2022**  
**MUSIC SYLLABUS**

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1. G.K& current Affairs -	–	05M
2. Perspectives in Education	–	05M
3. Educational Psychology	–	05M
4. Language ability (Telugu)	–	05M
5. Content& Methodology	–	50M
<b>Total</b>	–	<b>70M</b>
6. Skill Test	–	30M
<b>Total</b>	–	<b>100 M</b>

**KARNATIC MUSIC SYLLABUS**

**PART - I**

**I. General Knowledge And Current Affairs (Marks: 05)**

**PART - II**

**II. Perspectives In Education (Marks: 05)**

**1. History of Education :**

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

**2. Teacher Empowerment:**

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

**3. Educational Concerns in Contemporary India:**

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education

- Value Education – More Value and Professional Ethics in Education.
  - Health and Physical Education
  - Inclusive Education - Classroom Management in Inclusive Education
  - Role of Education in view of Liberalization, Privatization and Globalization
  - Programmes and Projects – APPEP, DPEP, SarvaSikshaAbhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), RashtriyaAveshekarAbhiyan (RAA), KGBVs, Model Schools.
  - Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
  - Current Trends in Education – Badipelusthondi, BadikiVasta, Mavuru – ManaBadi, Vidyanjali, SwachaPatasala, Inspire, Kalavutsav.
4. **Acts / Rights:**
- Right of Children to Free and Compulsory Education Act - 2009
  - Right to Information Act - 2005
  - Child Rights
  - Human Rights.
5. **National Curriculum** - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.
6. **National Educational Policy-2020**

### PART - III

### III. Educational Psychology – 05Marks

1. **Development of Child:** Development, Growth & Maturation – Concept & Nature. Principles of development and their education implication. Factors influencing Development – Biological, Psychological, Sociological, emotional. Dimensions of Development and their interrelationship – Physical & Motor, Cognitive, Emotional, Social, Moral, Language relating to Infancy, early Childhood, late Child hood, Adolescence. Understanding Development – Piaget, Kohlberg, Chomsky, Carl Rogers, Erikson.
2. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
3. **Learning:**Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation – Children with special need – Inclusive Education.
4. **Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

## PART –IV

### **Language Ability (Telugu): (05 Marks)**

1) (3వ తరగతి నుండి 8వ తరగతి వరకు గల ఆంధ్రప్రదేశ్ తెలుగు వాచకాలలో పాఠ్యభాగ విషయాలు)

- A) కవి పరిచయాలు
- B) పాత్రలు
- C) ఇతి వృత్తాలు
- D) సందర్భాలు
- E) నేపథ్యాలు
- F) విద్యా ప్రమాణాలు

2) పదజాలం: -

- A) అర్థాలు
- B) పర్యాయపదాలు
- C) నానార్థాలు
- D) వ్యుత్పత్త్యర్థాలు
- E) జాతీయాలు
- F) సామెతలు - వివరణ, గుర్తించడం.
- G) పొడుపు కథలు

3) భాషాంశాలు:

- A) విభక్తి ప్రత్యయాలు
- B) ఔపవిభక్తికాలు
- C) పారిభాషిక పదాలు - ((ద్రుత ప్రకృతికాలు, కళలు, ఆమ్రేడితం, సంధి, వచనాలు, కాలాలు, లింగాలు, సమాసం, ఆగమం, ఆదేశం, బహుళం)
- D) సంధులు - తెలుగు సంధులు- (అత్వ, ఇత్వ, ఉత్వ, యడాగమ, సరళాదేశ, ఆమ్రేడిత, ద్వీరుక్తకార, గసడదవాదేశ సంధులు.)  
సంస్కృత సంధులు- (సవర్ణద్విర్లు, గుణ, యణాదేశ, వృద్ధి సంధులు.)
- E) సమాసాలు - (ద్వంద్వ, ద్వీగు, తత్పురుష సమాసాలు)
- F) ఛందస్సు - గణవిభజన, గణాల గుర్తింపు
- G) అలంకారాలు -  
వృత్త్యనుప్రాస, ఛేకానుప్రాస, అంత్యానుప్రాస (శబ్దాలంకారాలు) ఉపమా, ఉత్పేక్ష, అతిశయోక్తి (అర్థాలంకారాలు). అలంకారాలు గుర్తించుట, లక్ష్య లక్షణ సమన్వయం చేయుట.
- H) వాక్యాలు- (ఆశ్చర్యార్థక, విద్యర్థక, నిషేధార్థక, అనుమత్యర్థక, సామర్థ్యార్థక, సందేహార్థక, ఆశీర్వాదార్థక, ప్రార్థనార్థక, ప్రశ్నార్థక, హేత్యుర్థక, కర్తరి, కర్మణి వాక్యాలు)

## PART –V

### **Content and Methodology – 50Marks**

#### **1) Unit – I – Technical Words**

- 1) Nada      2) Sangeetha 3) Sruthi 4) Swara    5) Swarasthanas  
6) Ascent and Descent      7) Sthayi    8) Dhatu&Matu    9) Tala  
10) Rhythm      11) Prathama, Dwiteeya&TriteeyaKalas 12) Aksharakala

#### **2) Unit –II - Ragam**

- A) Explanation of Raga  
B) Classifications of Raga – Janya, Janakaraga Procedure  
C) Thirteen Characteristics of Raga  
D) Characteristics of the following Ragas: Mayamalavagoula, Sankarabharana, Kalyani, Kharaharapriya, Harikhambhoji, Pantuavarali, Kambhoji, Bhairavi, Purvikalyani, Mohana, Hamsadhvani, Hindolam, Madhyamavati, Bilahari, Arabhi, Chakravakam.

#### **3) Unit –III - Tala**

- A) Explanation of Tala  
B) Importance of Laya  
C) SaptaTalas  
D) Jati&Gati  
E) TaladasaPranas  
F) Chaputalas  
G) Understanding of 35 talas

#### **4) Unit –IV - Different Music forms**

- 1) Geetam      2) Swarapallavi      3) Swarajati 4) Varnam      5) Keerthana  
6) Kriti      7) Padam      8) Jaavali      9) Ashtapadi      10) Tarangam

#### **5) Unit –V – Musical Instruments**

- 1) Tambura    2) Veena      3) Violin    4) Mridangam    5) Flute  
6) Gotu      7) Nadaswaram    8) Clarinet    9) Dolu      10) Ghatam

#### **6) Unit –VI – Vageyakara**

- 1) Jayadeva      2) Narayanateerdha      3) PuramdaraDasa  
4) Annamaya      5) Ramadasu      6) Thyagaraju  
7) MuthuswamiDeekshitar    8) SyamaSastri      9) Kshetraiah

- 10) SwathiTirunal                      11) MuttayaBhagavtar                      12) Vasudeva Chari  
13) Sada Siva Brahmedra                      14) PatnamSubramnyayyar

**7) Unit –VII –Music concepts in improvised music**

- 1) Manodharmasangeetam  
a) Ragalapana                      b) Tanam                      c) Pallavi                      d) Neraval                      e) SwaraKalpana  
2) The Process of Writing of Swarallipi or Natation  
3) Writing of Swaralipior natation for different compositions  
4) The process of musical concert

**8) Unit –VIII – Musical Development in the State of Andhra Pradesh**

- A) Evaluation of Music  
B) Contribution of Vaggeyakara in Andhra Pradesh  
C) Different Dimensions of support towards propagation of Music in Andhra Pradesh  
D) Academic Development of Music

**9) Unit –IX – Seats of Music, Different genres of Music.**

- A) Seats of Music – Tamil Nadu, Karnataka, Kerala, Andhra Pradesh  
B) Different genres of Music and its importance- Devotional Music, Karnatic Music, Hindustani Music, Folk Music, Light Music, Cinema Music.

**10) Unit –IX–Other Music Forms**

- A) Prosody of Music (Chandas)  
B) Contemporary Music  
C) Teaching of Music in Schools

**Part – VI**

**Skill Test (30 Marks):**

# ***HINDUSTANI MUSIC SYLLABUS***

## **PART - I**

### **I. General Knowledge And Current Affairs (Marks: 05)**

## **PART - II**

### **II. Perspectives In Education (Marks: 05)**

#### **1. History of Education :**

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#### **2. Teacher Empowerment:**

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- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Morel Value and Professional Ethics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, SarvaSikshaAbhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), RashtriyaMadhyamikaSikshaAbhiyan(RMSA), RashtriyaAveshekarAbhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarship, Awards, Welfare Hostels, Transportation.
- Current Trends in Education – Badipelusthondi, BadikiVasta, Mavuru – ManaBadi, Vidyanjali, SwachaPatasala, Inspire, Kalavutsav.

#### **4. Acts / Rights:**

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

#### **5. National Curriculum - Framework, 2005: Perspective, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessment, Systemic Reforms.**



## PART - III

### **III. Educational Psychology – 05Marks**

- 1. Development of Child:** Development, Growth & Maturation – Concept & Nature. Principles of development and their education implication. Factors influencing Development – Biological, Psychological, Sociological, emotional. Dimensions of Development and their interrelationship – Physical & Motor, Cognitive, Emotional, Social, Moral, Language relating to Infancy, early Childhood, late Child hood, Adolescence. Understanding Development – Piaget, Kohlberg, Chomsky, Carl Rogers, Erikson.
- 2. Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
- 3. Learning:**Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation – Children with special need – Inclusive Education.
- 4. Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

## PART –IV

### **Language Ability (Telugu): (05 Marks)**

1) (3వ తరగతి నుండి 8వ తరగతి వరకు గల ఆంధ్రప్రదేశ్ తెలుగు వాచకాలలో పాఠ్యభాగ విషయాలు)

- A) కవి పరిచయాలు
- B) పాత్రలు
- C) ఇతి వృత్తాలు
- D) సందర్భాలు
- E) నేపథ్యాలు
- F) విద్యా ప్రమాణాలు

2) పదజాలం:-

- A) అర్థాలు
- B) పర్యాయపదాలు
- C) నానార్థాలు
- D) వ్యుత్పత్త్యర్థాలు
- E) జాతీయాలు
- F) సామెతలు - వివరణ, గుర్తించడం.
- G) పొడుపు కథలు

**3) భాషాంశాలు:**

- A) విభక్తి ప్రత్యయాలు  
B) ఔపవిభక్తికాలు  
C) పారిభాషిక పదాలు - (ద్రుత ప్రకృతికాలు, కళలు, ఆమ్రేడితం, సంధి, వచనాలు, కాలాలు, లింగాలు, సమాసం, ఆగమం, ఆదేశం, బహుళం)  
D) సంధులు - తెలుగు సంధులు- (అత్వ, ఇత్వ, ఉత్వ, యడాగమ, సరళాదేశ, ఆమ్రేడిత, ద్విరుక్తటకార, గసడదవాదేశ సంధులు.)  
సంస్కృత సంధులు- (సవర్ణదీర్ఘ, గుణ, యణాదేశ, వృద్ధి సంధులు.)  
E) సమాసాలు - (ద్వంద్వ, ద్విగు, తత్పురుష సమాసాలు)  
F) ఛందస్సు - గణవిభజన, గణాల గుర్తింపు  
G) అలంకారాలు -  
వృత్త్యనుప్రాస, ఛేకానుప్రాస, అంత్యానుప్రాస (శబ్దాలంకారాలు) ఉపమా, ఉత్పేక్ష, అతిశయోక్తి (అర్థాలంకారాలు). అలంకారాలు గుర్తించుట, లక్ష్య లక్షణ సమన్వయం చేయుట.  
H) వాక్యాలు- (అశ్చర్యార్థక, విద్యర్థక, నిషేధార్థక, అనుమత్యర్థక, సామర్థ్యార్థక, సందేహార్థక, ఆశీర్వాదార్థక, ప్రార్థనార్థక, ప్రశ్నార్థక, హేత్వర్థక, కర్తరి, కర్మణి వాక్యాలు)

**PART -V**

**Content and Methodology – 50Marks**

**1) Unit – I – Technical Words**

- 1) Nadha      2) Sangeetha    3) Sruthi    4) Swara      5) Swarasthanas  
6) Ascent and Descent      7) Sthayi      8) Dathu&Matu      9) Tala  
10) Rhythm      11) Prathama, Dwiteeya&TriteeyaKalas    12) Aksharakala

**2) Unit –II - Ragam**

- A) Explanation of Raga  
B) Classifications of Raga – Janya, Janakaraghaprocedure  
C) Thirteen Characteristics of Raga  
D) Ragas in Hindustani Style  
E) Evolution of Raga  
F) Gamaka

**3) Unit –III - Tala**

- A) Explanation of Tala  
B) Importance of Laya  
C) SaptaTalas  
D) Jati&Gati

- E) TaladasaPranas
- F) Chaputalas
- G) Understanding of 10 tala in Hindustani Style

**4) Unit –IV - Different Music forms**

- 1) Dhrupad    2) Khayal    3) Taranaa    4) Tappa    5) Tumri
- 6) Dadra    7) Chaitee    8) Horee    9) Bhajan    10) Ghajal

**5) Unit –V – Musical Instruments**

- 1) Tanpuraa    2) Sitar    3) Violin    4) Sarangi    5) Shahanai
- 6) Harmoniyam    7) Bansuri    8) Santoor    9) Pakhavaj    10) Tabla

**6) Unit –VI – Vageyakara**

- 1) MeeraBhi    2) Tulasi Das 3) Kabeer Das
- 4) Hari Das    5) Tansen    6) Tukaram
- 7) AmeerKhusru    8) GopalNayak    9) Bhatkande
- 10) VishnudigambarPaluskar 11) BaijuBavara    12) Sadarang, Adarang

**7) Unit –VII – Individual Style of Music concepts**

- 1) ManodharmaSangeetam
  - a) Ragalapana    b) Tanam    c) Pallavi    d) Neraval    5) SwaraKalpana
- 2) The Process of Writing of Swarallipi or Notation
- 3) Writing of Swaralipior notation for different compositions
- 4) The procedure of musical concert

**8) Unit –VIII – Musical Development in the State of Andhra Pradesh**

- A) Evaluation of Music
- B) Contribution of Vaggeyakara in Andhra Pradesh
- C) Different Dimensions of support towards propagation of Music in Andhra Pradesh
- D) Academic Development of Music

**9) Unit –IX – Seats of Music, Different genres of Music**

- A) Seats of Music – Tamil Nadu, Karnataka, Kerala, Andhra Pradesh
- B) Different genres of Music and its importance- Devotional Music, Karnatic Music, Hindustani Music, Folk Music, Light Music, Cinema Music.

**10) Unit –IX – Other Music Forms**

- A) Prosody of Music (Chandas)
- B) Contemporary Music
- C) Teaching of Music in Schools

**Part – VI**

**Skill Test (30 Marks):**

Adda247

**Government of Andhra Pradesh  
Department of School Education  
State Council of Educational Research & Training**

**SPL DSC-2022**

**SCHOOL ASSISTANT – SPECIAL EDUCATION  
SYLLABUS**

**Adda247**

Division	Subjects	No. of questions	Marks	Syllabus
Part – I	<b>G.K. &amp; Current affairs</b>	10	5	Standard G.K and Events happened in the year 2022
Part-II	<b>Perspectives in Education</b>	10	5	2010-2018 D.Ed/ D.El.Ed Telugu Academy Text Books
Part – III	<b>Educational Psychology</b>	10	5	2010-2018 D.Ed/ D.El.Ed. Telugu Academy Text Books
Part - IV	<b>Language ability (Telugu)</b>	30	15	Up to 8 <sup>th</sup> Class Present AP State Syllabus
Part - V	<b>Content and Methodology</b>	140	70	Higher and Lower Technical Certificate Course Syllabus of AP State
<b>Total</b>		<b>200</b>	<b>100</b>	

# **Curriculum Framework**

The logo for Adda247 is positioned behind the main title. It features the word 'Adda' in a large, bold, red font, followed by the number '247' in a smaller, bold, red font. The '247' is enclosed within a red rectangular border.

**Bachelor of Education - Special Education**

**B.Ed.Spl.Ed.**

**Norms, Regulations & Course Content**

**May, 2015**

**Effective from Academic Session 2015-16  
Two Years Duration**



**Rehabilitation Council of India B-22, Qutab Institutional Area,  
New Delhi - 110 016 Email: [rehabstd@nde.vsnl.net.in](mailto:rehabstd@nde.vsnl.net.in), [rehcouncildelhi@bol.net.in](mailto:rehcouncildelhi@bol.net.in) [www.rehabcouncil.nic.in](http://www.rehabcouncil.nic.in)**

**Adda247**



**Adda247**

## AREA - A

### CORE COURSES

A1	Human Growth & Development
A2	Contemporary India and Education
A3	Learning, Teaching and Assessment
A4	Pedagogy of Teaching (Special Reference to Disability) Any one
	PART I : Science (Special Reference to Disability)
	PART II: Mathematics (Special Reference to Disability)
	PART III: Social Studies (Special Reference to Disability)
A5	Pedagogy of Teaching (Special Reference to Disability) Any one
	PART IV: Hindi / Regional Language (Special Reference to Disability)
	PART V: English (Special Reference to Disability)

**Course Code: A 1**

**Credit: 04**

**Contact Hours: 60**

**Marks: 100**

**Unit 1: Approaches to Human Development**

- 1.1 Human development as a discipline from infancy to adulthood
- 1.2 Concepts and Principles of development
- 1.3 Developing Human- Stages (Prenatal development, Infancy, Childhood, Adolescence, Adulthood)
- 1.4 Nature vs Nurture
- 1.5 Domains (Physical, Sensory- perceptual, Cognitive, Socio-emotional, Language & communication, Social relationship)

**Unit 2: Theoretical Approaches to Development**

- 2.1 Cognitive & Social- cognitive theories (Piaget, Vygotsky, Bruner, Bandura)
- 2.2 Psychosocial Theory (Erikson)
- 2.3 Psychoanalytic Theory (Freud)
- 2.4 Ecological Theory (Bronfrenbrenner)
- 2.5 Holistic Theory of Development (Steiner)

**Unit 3: The Early Years (Birth to Eight Years)**

- 3.1 Prenatal development: Conception, stages and influences on prenatal development
- 3.2 Birth and Neonatal development: Screening the newborn - APGAR Score, Reflexes and responses, neuro-perceptual development
- 3.3 Milestones and variations in Development
- 3.4 Environmental factors influencing early childhood development
- 3.5 Role of play in enhancing development

**Unit 4: Early Adolescence (From nine years to eighteen years)**

- 4.1 Emerging capabilities across domains of physical and social emotional
- 4.2 Emerging capabilities across domains related to cognition - metacognition, creativity, ethics
- 4.3 Issues related to puberty
- 4.4 Gender and development
- 4.5 Influence of the environment (social, cultural, political) on the growing child

**Unit 5: Transitions into Adulthood**

- 5.1 Psychological well-being
- 5.2 Formation of identity and self-concept
- 5.3 Emerging roles and responsibilities
- 5.4 Life Skills and independent living
- 5.5 Career Choices

## CONTEMPORARY INDIA AND EDUCATION

**Course Code: A2**

**Credit: 04**

**Contact Hours: 60**

**Marks: 100**

### **Unit 1: Philosophical Foundations of Education**

- 1.1 Education: Concept, definition and scope
- 1.2 Agencies of Education: School, family, community and media
- 1.3 Philosophies of Education: idealism, naturalism, pragmatism, existentialism, humanism, constructivism and connectionism
- 1.4 Classical Indian Perspective (Buddhism, Jainism, Vedanta Darshan, Sankya Darshan)
- 1.5 Indian Philosophers (Aurobindo, Gandhi, Tagore, Krishna Murthy)

### **Unit 2: Understanding Diversity**

- 2.1 Concept of Diversity
- 2.2 Types of Diversity: Gender, linguistic, cultural, socio-economic and disability
- 2.3 Diversity in learning and play
- 2.4 Addressing diverse learning needs
- 2.5 Diversity: Global Perspective

### **Unit 3: Contemporary Issues and Concerns**

- 3.1 Universalisation of School Education, Right to Education and Universal Access
- 3.2 Issues of a) Universal enrolment b) Universal retention c) Universal learning
- 3.3 Issues of quality and equity: Physical, economic, social, cultural and linguistic, particularly w.r.t girl child, weaker sections and disabled
- 3.4 Equal Educational Opportunity: (i) Meaning of equality and constitutional provisions (ii) Prevailing nature and forms of inequality, including dominant and minority groups and related issues
- 3.5 Inequality in Schooling: Public-private schools, rural-urban schools, single teacher schools and other forms of inequalities such as regular and distance education system

### **Unit 4: Education Commissions and Policy (School Education)**

- 4.1 Constitutional provisions on education that reflect National Ideals: Equality, liberty, secularism, and social justice
- 4.2 National Commissions and Policies: Education Commission (1964), NPE and POA (1986, 1992), National Policy for Persons with Disabilities (2006)
- 4.3 National Acts: RCI Act, 1992, PWD Act, 1995, NT Act, 1999, RTE Act (2009 & 2012).
- 4.4 Programmes and Schemes: IEDC (1974, 1983), SSA (2000, 2011), RMSA, 2009, IEDSS, 2009
- 4.5 International Conventions and Policies: Salamanca Declaration and Framework, 1994; UNCRPD, 2006; MDG, 2015; INCHEON strategies

## **Unit 5: Issues and Trends in Education**

- 5.1 Challenges of education from preschool to senior secondary
- 5.2 Inclusive education as a rights based model
- 5.3 Complementarity of inclusive and special schools
- 5.4 Language issues in education
- 5.5 Community participation and community based education



# LEARNING, TEACHING AND ASSESSMENT

**Course Code: A 3**

**Credits: 04**

**Contact Hours: 60**

**Marks: 100**

## **Unit 1: Human Learning and Intelligence**

- 1.1 Human learning: Meaning, definition and concept formation
- 1.2 Learning theories:
  - Behaviourism: Pavlov, Thorndike, Skinner
  - Cognitivism: Piaget, Bruner
  - Social Constructism: Vygotsky, Bandura
- 1.3 Intelligence:
  - Concept and definition
  - Theories: Two-factor, Multifactor, Triarchic Theory (Robert Steinberg)
- 1.4 Creativity: Concept, Definition and Characteristics
- 1.5 Implications for Classroom Teaching and Learning

## **Unit 2: Learning Process and Motivation**

- 2.1 Sensation: Definition and Sensory Process
- 2.2 Attention: Definition and Affecting Factors
- 2.3 Perception: Definition and Types
- 2.4 Memory, Thinking, and Problem Solving
- 2.5 Motivation: Nature, Definition and Maslow's Theory

## **Unit 3: Teaching Learning Process**

- 3.1 Maxims of Teaching
- 3.2 Stages of Teaching: Plan, Implement, Evaluate, Reflect
- 3.3 Stages of Learning: Acquisition, Maintenance, Generalization
- 3.4 Learning Environment: Psychological and Physical
- 3.5 Leadership Role of Teacher in Classroom, School and Community

## **Unit 4: Overview of Assessment and School System**

- 4.1 Assessment: Conventional meaning and constructivist perspective
- 4.2 'Assessment of Learning' and 'Assessment for Learning': Meaning and difference
- 4.3 Comparing and contrasting assessment, evaluation, measurement, test and examination
- 4.4 Formative and summative evaluation, Curriculum Based Measurement
- 4.5 Revisiting key concepts in school evaluation: filtering learners, marks, credit, grading, choice, alternate certifications, transparency, internal-external proportion, improvement option

## **Unit 5: Assessment: Strategies and Practices**

- 5.1 Strategies: (Oral, written, portfolio, observation, project, presentation, group discussion, open book test, surprise test, untimed test, team test, records of learning landmark, cloze set/open set and other innovative measures) Meaning and procedure
- 5.2 Typology and levels of assessment items: Multiple choice, open ended and close ended; direct, indirect, inferential level
- 5.3 Analysis, reporting, interpretation, documentation, feedback and pedagogic decisions
- 5.4 Assessment of diverse learners: Exemptions, concessions, adaptations and accommodations;
- 5.5 School examinations: Critical review of current examination practices and their assumptions about learning and development; Efforts for exam reforms: Comprehensive and Continuous Evaluation (CCE), NCF (2005) and RTE (2009)



## PEDAGOGY OF TEACHING SCIENCE

**Course Code: A 4 (Part I)**  
**Contact Hours: 60**

**Credits: 04**  
**Marks: 100**

### **Unit 1: Nature and Significance of Science**

- 1.1 Nature, Scope, Importance and Value of Science
- 1.2 Science As An Integrated Area of Study
- 1.3 Science and Modern Indian Society: Relationship of Science and Society
- 1.4 Impact of Science with Special Reference to Issues related with Environment, Industrialization and Disarmament
- 1.5 Role of Science for Sustainable Development

### **Unit 2: Planning for Instruction**

- 2.1 Aims and Objectives of Teaching Science in Elementary and Secondary School
- 2.2 Bloom's Taxonomy of Educational Objectives and Writing Objectives in Behavioural Terms
- 2.3 Lesson Planning - Importance and Basic Steps. Planning Lesson for an Explanation, Demonstration, and Numerical Problem in Teaching of Sciences
- 2.4 Unit Planning - Format of A Unit Plan
- 2.5 Pedagogical Analysis: Meaning and Need. Guidelines for Conducting Pedagogical Analysis

### **Unit 3: Approaches and Methods of Teaching Sciences**

- 3.1 Process Approach, Direct Experience Approach, Inductive-Deductive Approach
- 3.2 Lecture, Demonstration, Discussion, Problem-solving, Concept-mapping, Programmed Instruction, Team Teaching, Seminar, Computer Assisted Learning (CAL)
- 3.3 Project Method and Heuristic Method
- 3.4 Creating Different Situations of Learning Engagement: Group Learning, Individual Learning, Small Group, Cooperative (Peer-Tutoring, Jigsaw, etc.), Situated/Contextual Learning with reference to Children with Disabilities
- 3.5 Constructivist Approach and its Use in Teaching Science

### **Unit 4: Learning Resources with reference to Children with Disabilities for Teaching Science**

- 4.1 Teaching Learning Aids - Need, Importance, Selection, Use and Classification of Aids Based on Type of Experience, Audio Visual Aids, Multimedia, Charts, and Models (Tactile and Visual)
- 4.2 Importance of Co-Curricular Activities-Science Club, Science Exhibition, Science Text Books-Characteristics and Significance with reference to Children with Disabilities
- 4.3 The Science Laboratory-Planning Organization of Lab, Storage, Record Keeping and Safety of Scientific Equipments with reference to Children with Disabilities
- 4.4 Aquarium, Vivarium - Role in Teaching with Setting & Maintaining
- 4.5 Museum, Botanical And Zoological Garden: Role In Teaching



## **Unit 5: Evaluation**

- 5.1 Evaluation- Concept, Nature and Need
- 5.2 Norm Referenced & Criterion Referenced Evaluation, Comprehensive and Continuous Evaluation:  
Concept and Significance, Scholastic and Co-Scholastic Assessment
- 5.3 Tools and Techniques for Formative and Summative Assessments
- 5.4 Preparation of Diagnostic Test and Achievement Test
- 5.5 Adaptations of Evaluation Procedure With Reference To Children With Disabilities



## **PEDAGOGY OF TEACHING MATHEMATICS**

**Course Code: A 4 (Part II)**

### **Unit 1: Nature of Mathematics**

- 1.1 Meaning, Nature, Importance and Value of Mathematics
- 1.2 Axioms, Postulates, Assumptions and Hypothesis in Mathematics
- 1.3 Historical Development of Notations and Number Systems
- 1.4 Contribution of Mathematicians (Ramanujam, Aryabhata, Bhaskaracharya, Euclid, Pythagoras)
- 1.5 Perspectives on Psychology of Teaching and Learning of Mathematics-Constructivism, Enactivism, Vygotskian Perspectives, and Zone of Proximal Development

### **Unit 2: Objectives and Instructional Planning in Mathematics**

- 2.1 Aims and Objectives of Teaching Mathematics in Elementary and Secondary Schools
- 2.2 Bloom's Taxonomy of Educational Objectives and Writing Objectives in Behavioural Terms
- 2.3 Lesson Planning- Importance and Basic Steps. Planning Lesson of Arithmetic, Algebra and Geometry
- 2.4 Unit Planning - Format of A Unit Plan
- 2.5 Pedagogical Analysis: Meaning and Need and Procedure for Conducting Pedagogical Analysis. Classification of Content, Objective, Evaluation, etc

### **Unit 3: Strategies for Learning and Teaching Mathematics**

- 3.1 Concept Formation and Concept Attainment: Concept Attainment Model for Learning and Teaching of Concepts
- 3.2 Learning By Exposition: Advanced Organizer Model
- 3.3 Methods of Teaching- Lecture, Discussion, Demonstration, Inductive-Deductive, Analytic-Synthetic, Problem-Solving, And Project
- 3.4 Techniques of Teaching Mathematics: Oral Work, Written Work, Drill-Work, Brain-Storming and Computer Assisted Instruction (CAI)
- 3.5 Creating Different Situations of Learning Engagement: Group Learning, Individual Learning, Small-Group, Cooperative (Peer-Tutoring, Jigsaw, etc.), and Situational/ Contextual Learning

### **Unit 4: Teaching-Learning Resources in Mathematics for Students with Disabilities**

- 4.1 Mathematics Laboratory- Concept, Need, and Equipment for Setting Up a Mathematics Laboratory
- 4.2 Utilization of Learning Resources in Mathematics: Charts and Pictures, Weighing and Measuring Instruments, Drawing Instruments, Models, Concrete Materials, Surveying Instruments With Reference To Children With Disabilities
- 4.3 Bulletin Boards and Mathematics Club
- 4.4 Abacus, Cussionaire Rods, Fractional Discs, Napier Strips
- 4.5 Calculators, Computers, Smart Boards, Multimedia Presentations, and Special Aids and Appliances For Children With Disabilities

## **Unit 5: Assessment and Evaluation for Mathematics Learning**

- 5.1 Assessment and Evaluation- Concept, Importance and Purpose
- 5.2 Error Analysis, Diagnostic Tests, Identification of Hard Spots and Remedial Measures
- 5.3 Tools and Techniques for Formative and Summative Assessments of Learner Achievement in Mathematics, Comprehensive and Continuous Evaluation in Mathematics
- 5.4 Preparation of Diagnostic and Achievement Test
- 5.5 Adaptations in Evaluation Procedure for Students With Disabilities



## **PEDAGOGY OF TEACHING SOCIAL SCIENCE**

**Course Code: A 4 (Part III)**

### **Unit I: Nature of Social Sciences**

- 1.1 Concept, scope and nature of social science
- 1.2 Difference between social sciences and social studies
- 1.3 Aims and objectives of teaching social science at school level
- 1.4 Significance of social science as a core subject
- 1.5 Role of social science teacher for an egalitarian society

### **Unit II: Curriculum and Instructional Planning**

- 2.1 Organization of social science curriculum at school level
- 2.2 Instructional Planning: Concept, need and importance
- 2.3 Unit plan and Lesson plan: need and importance
- 2.4 Procedure of Unit and Lesson Planning
- 2.5 Adaptation of unit and lesson plans for children with disabilities

### **Unit III: Approaches to teaching of Social Science**

- 3.1 Curricular approaches: a) Coordination, b) Correlational, c) Concentric, d) Spiral, e) Integrated, f) Regressive
- 3.2 Methods of teaching social science: Lecture, discussion, socialized recitation, source and project method
  - 3.2.1. Devices and techniques of teaching social studies - Narration, description, illustration, questioning, assignment, field trip, story telling, Role play, Group and self study, programmed learning, inductive thinking, Concept mapping, expository teaching and problem solving
- 3.3 Accommodations required in approaches for teaching children with disabilities
- 3.4 Instructional material for teaching of social science: Time-lines & Genealogical charts, Maps & Globes, Use of different types of Boards(Smart boards, Chalk Board, Flannel Board), Tape-records, Radio, Television, Films & Filmstrips, Overhead Projector, Social science games and Power Point Presentation
- 3.5 Adaptations of material for teaching children with disabilities

### **Unit IV: Evaluation of Learning in Social Science**

- 4.1 Purpose of evaluation in social science
- 4.2 Techniques of evaluating learner achievement in social Science: Written and Oral tests, Observation Tools, Work Samples, Portfolio
- 4.3 Assessment: tools and techniques of Continuous and Comprehensive Evaluation (CCE) for curricular and co-curricular subjects
- 4.4 Construction of teacher made test
- 4.5 Diagnostic testing and enrichment techniques for children with disabilities

## **Unit V: Social Science Teacher as a Reflective Practitioner**

- 5.1 Being a reflective practitioner- use of action research
- 5.2 Developing an Action Research Plan for solving a problem in teaching-learning of Social science
- 5.3 Case study- Need and Importance for a School Teacher
- 5.4 Development of a Professional Portfolio/ Teaching Journal
- 5.5 Competencies for teaching Social science to children with disabilities



**Course Code: A5 (Part V)**

**Unit I: Nature of English Language & Literature**

- 1.1 Principles of Language Teaching
- 1.2 Language Proficiency: Basic Interpersonal Communication Skills (BICS) and Cognitive Academic Language Proficiency( CALP)
- 1.3 English Language in the school context: An Evolutionary Perspective
- 1.4 Current Trends in Modern English Literature in Indian context
- 1.5 Teaching as second language in Indian context.

**Unit II: Instructional Planning**

- 2.1 Aims and objectives of Teaching English at different stages of schooling
- 2.2 Instructional Planning: Need and Importance
- 2.3 Unit and lesson plan: Need and Importance
- 2.4 Procedure of Unit and Lesson Planning
- 2.5 Planning and adapting units and lessons for children with disabilities

**Unit III: Approaches and Methods of Teaching English**

- 3.1 Difference between an approach and a method
- 3.2 Task based approach, co-operative learning, language across curriculum, communicative language teaching, Bilingual, Eclectic and Constructive approach
- 3.3 Method Teaching of Prose, Poetry, Drama, Grammar and Vocabulary- i) Translation method. ii) Structural - Situational method. iii) Direct method
- 3.4 Development of four basic language skills: Listening, Speaking, Reading, and Writing
- 3.5 Accommodation in approaches and techniques in teaching children with disabilities

**Unit IV: Instructional Materials**

- 4.1 Importance of instructional material and their effective use
- 4.2 The use of the instructional aids for effective teaching of English: Smart boards, Chalk Board, Flannel Board, Pictures/ Picture-cut-outs, Charts, Tape-records, Radio, Television, Films & Filmstrips, Overhead Projector, Language Laboratory, Language games, reading cards, Worksheets, Handouts, and Power Point Presentation
- 4.3 Construction of a teacher made test for English proficiency
- 4.4 Teaching portfolio
- 4.5 Adaptations of teaching material for children with disabilities

**Unit V: Evaluation**

- 5.1 Evaluation - Concept and Need
- 5.2 Testing Language skills and Language elements (Vocabulary, Grammar and Phonology)
- 5.3 Adaptation of Evaluation Tools for Children with Disabilities
- 5.4 Individualized assessment for Children with Disabilities
- 5.5 Error analysis, Diagnostic tests and Enrichment measures

## Area- B

### CROSS DISABILITY AND INCLUSION

B6	Inclusive Education
B7	Introduction to Sensory Disabilities (VI, HI, Deaf-Blind)
B8	Introduction to Neuro Developmental Disabilities (LD, MR(ID), ASD)
B9	Introduction to Locomotor & Multiple Disabilities ( CP, MD)
B10	Skill-based Optional Course (Cross Disability and Inclusion)
B11	Skill-based Optional Course (Disability Specialization)

**B10: Skill-based Optional Course (Cross Disability and Inclusion) ANY ONE**

A	Guidance and Counselling
B	Early Childhood Care & Education
C	Applied Behavioural Analysis
D	Community Based Rehabilitation
E	Application of ICT in Classroom
F	Gender and Disability
G	Braille and Assistive Devices

**B11: Skill-based Optional Course (Disability Specialization) ANY ONE**

A	Orientation & Mobility
B	Communication Options: Oralism
C	Communication Options: Manual Options (Indian Sign Language)
D	Augmentative and Alternative Communication
E	Management of Learning Disability
F	Vocational Rehabilitation & Transition to Job Placement

# INCLUSIVE EDUCATION

**Course Code: B 6**

## **Unit 1: Introduction to Inclusive Education**

- 1.1 Marginalisation vs. Inclusion: Meaning & Definitions
- 1.2 Changing Practices in Education of Children with Disabilities: Segregation, Integration & Inclusion
- 1.3 Diversity in Classrooms: Learning Styles, Linguistic & Socio-Cultural Multiplicity
- 1.4 Principles of Inclusive Education: Access, Equity, Relevance, Participation & Empowerment
- 1.5 Barriers to Inclusive Education: Attitudinal, Physical & Instructional

## **Unit 2: Policies & Frameworks Facilitating Inclusive Education**

- 2.1 International Declarations: Universal Declaration of Human Rights (1948), World Declaration for Education for All (1990)
- 2.2 International Conventions: Convention against Discrimination (1960), Convention on Rights of a Child (1989), United Nations Convention of Rights of Persons with Disabilities (UNCRPD) (2006)
- 2.3 International Frameworks: Salamanca Framework (1994), Biwako Millennium Framework of Action (2002)
- 2.4 National Commissions & Policies: Kothari Commission (1964), National Education Policy (1968), National Policy on Education (1986), Revised National Policy of Education (1992), National Curricular Framework (2005), National Policy For Persons With Disabilities (2006)
- 2.5 National Acts & Programs: IEDC (1974), RCI Act (1992), PWD Act (1995), National Trust Act (1999), SSA (2000), RTE (2006), RMSA (2009), IEDSS (2013)

## **Unit 3: Adaptations Accommodations and Modifications**

- 3.1 Meaning, Difference, Need & Steps
- 3.2 Specifics for Children with Sensory Disabilities
- 3.3 Specifics for Children with Neuro-Developmental Disabilities
- 3.4 Specifics for Children with Loco Motor & Multiple Disabilities
- 3.5 Engaging Gifted Children

## **Unit 4: Inclusive Academic Instructions**

- 4.1 Universal Design for Learning: Multiple Means of Access, Expression, Engagement & Assessment
- 4.2 Co-Teaching Methods: One Teach One Assist, Station-Teaching, Parallel Teaching, Alternate Teaching & Team Teaching
- 4.3 Differentiated Instructions: Content, Process & Product
- 4.4 Peer Mediated Instructions: Class Wide Peer Tutoring, Peer Assisted Learning Strategies
- 4.5 ICT for Instructions

## **Unit 5: Supports and Collaborations for Inclusive Education**



- 5.1 Stakeholders of Inclusive Education & Their Responsibilities
- 5.2 Advocacy & Leadership for Inclusion in Education
- 5.3 Family Support & Involvement for Inclusion
- 5.4 Community Involvement for Inclusion
- 5.5 Resource Mobilisation for Inclusive Education



## INTRODUCTION TO SENSORY DISABILITIES

**Course Code: B 7**

### **Unit 1: Hearing Impairment: Nature & Classification**

- 1.1 Types of sensory impairments: Single (Hearing Impairment & Visual Impairment) & Dual sensory impairment (Deaf-blindness)
- 1.2 Importance of hearing
- 1.3 Process of hearing & its impediment leading to different types of hearing loss
- 1.4 Definition of hearing loss, demographics & associated terminologies: deaf/ Deaf/ deafness/ hearing impaired/ disability/ handicapped
- 1.5 Challenges arising due to congenital and acquired hearing loss

### **Unit 2: Impact of Hearing Loss**

- 2.1 Characteristics of learners with hearing loss and impact of different degrees of hearing impairment on communication
- 2.2 Language & communication issues attributable to hearing loss and need for early Intervention
- 2.3 Communication options, preferences & facilitators of individuals with hearing loss
- 2.4 Issues & measures in literacy development and scholastic achievement of students with hearing loss
- 2.5 Restoring techniques using human (interpreter) & technological support (hearing devices)

### **Unit 3: Visual Impairment- Nature and Assessment**

- 3.1. Process of Seeing and Common Eye Disorders in India
- 3.2. Blindness and Low Vision--Definition and Classification 3.2. Demographic Information--NSSO and Census 2011
- 3.4. Importance of Early Identification and Intervention
- 3.5. Functional Assessment Procedures

### **Unit 4: Educational Implications of Visual Impairment**

- 4.1. Effects of Blindness- Primary and Secondary
- 4.2. Selective Educational Placement
- 4.3. Teaching Principles
- 4.4. Expanded Core Curriculum- Concept and Areas
- 4.5. Commonly Used Low Cost and Advanced Assistive Devices

### **Unit 5: Deaf-blindness**

- 5.1 Definition, causes, classification, prevalence and characteristics of deaf-blindness
- 5.2 Effects and implications of deaf-blindness on activities of daily living & education
- 5.3 Screening, assessment, identification & interventional strategies of deaf-blindness
- 5.4 Fostering early communication development: Methods, assistive devices and practices including AAC
- 5.5 Addressing orientation, mobility & educational needs of students with deaf-blindness

# **INTRODUCTION TO NEURO DEVELOPMENTAL DISABILITIES**

**Course Code: B 8**

## **Unit 1: Learning Disability: Nature, Needs and Intervention**

- 1.1 Definition, Types and Characteristics
- 1.2 Tools and Areas of Assessment
- 1.3 Strategies for reading, Writing and Maths
- 1.4 Curricular Adaptation, IEP, Further Education,
- 1.5 Transition Education, Life Long Education

## **Unit 2: Intellectual Disability: Nature, Needs and Intervention**

- 2.1 Definition, Types and Characteristics
- 2.2 Tools and Areas of Assessment
- 2.3 Strategies for Functional Academics and Social Skills
- 2.4 Assistive Devices, Adaptations, Individualized Education Plan, Person Centered Plan, Life Skill Education
- 2.5 Vocational Training and Independent Living

## **Unit 3: Autism Spectrum Disorder: Nature, Needs and Intervention**

- 3.1 Definition, Types and Characteristics
- 3.2 Tools and Areas of Assessment
- 3.3 Instructional Approaches
- 3.4 Teaching Methods
- 3.5 Vocational Training and Career Opportunities

## **GUIDANCE & COUNSELLING**

### **INTRODUCTION TO LOCOMOTOR AND MULTIPLE DISABILITIES**

**Course Code: B 9**

#### **Unit 1: Cerebral Palsy (CP)**

- 1.1. CP: Nature, Types and Its Associated Conditions
- 1.2. Assessment of Functional Difficulties of CP including Abnormalities of Joints and Movements (Gaits)
- 1.3. Provision of Therapeutic Intervention and Referral of Children with CP
- 1.4. Implications of Functional Limitations of Children with CP in Education and Creating Prosthetic Environment in School and Home: Seating Arrangements, Positioning and Handling Techniques at Home and School
- 1.5. Facilitating Teaching-Learning of Children with CP in School, IEP, Developing TLM; Assistive Technology to Facilitate Learning and Functional Activities

#### **Unit 2: Amputees, Polio, Spinal Cord Injuries Spina-bifida and Muscular Dystrophy**

- 2.1. Definition, Meaning and Classification
- 2.2. Assessment of Functional Difficulties
- 2.3. Provision of Therapeutic Intervention and Referral
- 2.4. Implications of Functional Limitations for Education and Creating Prosthetic Environment in School and Home: Seating Arrangements, Positioning and Handling Techniques at Home and School
- 2.5. Facilitating Teaching-Learning: IEP, Developing TLM; Assistive technology

#### **Unit 3: Multiple Disabilities and Other Disabling Conditions**

- 3.1 Multiple Disabilities: Meaning and Classifications
- 3.2 Various Combinations of Multiple Disabilities and Associated Conditions Such as Epilepsy, Motor and Sensory Conditions
- 3.3 Other Disabling Conditions such as Leprosy Cured Students, Tuberculous Sclerosis and Multiple Sclerosis
- 3.4 Implications of Functional Limitations for Education and Creating Prosthetic Environment in School and Home: Seating Arrangements, Positioning and Handling Techniques at Home and School
- 3.5 Facilitating Teaching-Learning: IEP, Developing TLM; Assistive technology

**Course Code: B 10(A)**

**Unit 1: Introduction to Guidance and Counselling**

- 1.1 Guidance and Counselling: Definition and Aims
- 1.2 Areas of Guidance and Counselling
- 1.3 Core Conditions in Counselling
- 1.4 Skills and Competencies of a Counsellor
- 1.5 Role of Teacher in Guiding and Counselling Students with Special Needs

**Unit 2: Enhancing Self Image and Self Esteem**

- 2.1 Concept of Self as Human
- 2.2 Understanding of Feelings and Changes
- 2.3 Growth to Autonomy
- 2.4 Personality Development
- 2.5 Role of Teacher in Developing Self-Esteem in Children

**Unit 3: Guidance and Counselling in Inclusive Education**

- 3.1 Current Status with reference to Indian School
- 3.2 Types of Counselling: Child-Centred, Supportive, Family
- 3.3 Guidance in Formal and Informal Situations: Within and Outside Classroom, Vocational Guidance
- 3.4 Group Guidance: Group Leadership Styles and Group Processes
- 3.5 Challenges in Group Guidance

# APPLIED BEHAVIOUR ANALYSIS

## EARLY CHILDHOOD CARE AND EDUCATION

**Course Code: B 10(B)**

### **Unit 1: The Early Years: An Overview**

- 1.1 Facts about Early Childhood Learning & Development
- 1.2 Neural Plasticity
- 1.3 Critical Periods of Development of Motor, Auditory, Visual, Linguistic & Cognitive Skills
- 1.4 Sensitive Periods of Learning: Maria Montessori's Framework & Windows of Opportunity & Learning Timelines of Development in Young Children
- 1.5 Integrating Theories of Development & Learning for Early Childhood Education Curricula

### **Unit2: Early Education of Children with Disabilities**

- 2.1 Young Children at Risk & Child Tracking
- 2.2 Interdisciplinary Assessments & Intervention Plans
- 2.3 Developmental Systems Model for Early Intervention (Ofguralnick, 2001)
- 2.4 Curricular Activities for Development of Skills of: Imagination, Joy, Creativity, Symbolic Play, Linguistic, Emergent Literacy, Musical, Aesthetic, Scientific & Cultural Skills
- 2.5 Evidenced Based Practices for Early Intervention

### **Unit 3: Inclusive Early Childhood Educational (ECE) Practices**

- 3.1 Natural Environments, Service Delivery Models & Importance of Universal Designs of Learning (UDL)
- 3.2 Practices for Inclusive ECE Programs: Adaptations of Physical Environment & Equipments, Visual Support Materials, Parent Partnerships, Friendships & Engagements with Typical Children
- 3.3 Principles of Inclusive ECE Practices: Full Participation, Open Ended Activities, Collaborative Planning
- 3.4 Collaborating with Parents, Family Education & Developing Individualised Family Service Plan (IFSP)
- 3.5 School Readiness and Transitions

**Course Code: B 10(C)**

**Unit 1: Introduction to Applied Behaviour Analysis (ABA)**

- 1.1 Principles of Behavioural Approach
- 1.2 ABA - Concept and Definition
- 1.3 Assumptions of ABA - Classical and Operant Conditioning
- 1.4 Behaviour- Definition and Feature
- 1.5 Assessment of Behaviour - Functional Analysis of Behaviour, Behaviour Recording Systems

**Unit 2: Strategies for Positive Behaviour Support**

- 2.1 Selection of Behavioural Goals
- 2.2 Reinforcement
  - Types: Positive and Negative, Primary and Secondary
  - Schedules: Continuous, Fixed Ratio, Fixed Interval, Variable Ratio, Variable Interval
- 2.3 Discrete Trial Teaching
  - Discriminative Stimulus - Characteristics
  - Response
  - Prompts: Physical, Gestural, Pointing, Visual, Positional, Verbal
  - Consequence - Characteristics
  - Inter-Trial Interval
- 2.4 Application of ABA in Group Setting
  - Negotiation and contract
  - Token economy
  - Response cost
  - Pairing and fading
- 2.5 Leadership role of teacher in promoting positive behaviour

**Unit 3: Management of Challenging Behaviour**

- 3.1 Differential Reinforcements of Behaviour
- 3.2 Extinction and Time Out
- 3.3 Response Cost and Overcorrection
- 3.4 Maintenance
- 3.5 Generalization and Fading

# COMMUNITY BASED REHABILITATION

**Course Code: B 10(D)**

## **Unit 1: Introduction to Community Based Rehabilitation (CBR)**

- 1.1 Concept and Definition of CBR
- 1.2 Principles of CBR
- 1.3 Difference between CBR and Institutional Living
- 1.4 Socio-cultural and Economic Contexts of CBR
- 1.5 Scope and Inclusion of CBR in Government Policies and Programs

## **Unit 2: Preparing Community for CBR**

- 2.1 Awareness Program-Types and Methods
- 2.2 Advocacy - Citizen and Self
- 2.3 Focus Group Discussion
- 2.4 Family Counselling and Family Support Groups
- 2.5 CBR and Corporate Social Responsibility

## **Unit 3: Preparing Persons with Disability for CBR**

- 3.1 School Education: Person Centred Planning, and Peer Group Support
- 3.2 Transition: Individual Transition Plan, Development of Self Determination and Self Management Skills
- 3.3 Community Related Vocational Training
- 3.4 Skill Training for Living within Community
- 3.5 Community Based Employment and Higher Education



## **GENDER AND DISABILITY**

**Course Code: B 10(E)**

### **Unit 1: Information Communication Technology (ICT) and Special Education**

- 1.1 Meaning and Scope of ICT and Its Role in 'Construction of Knowledge'
- 1.2 Possible Uses of Audio-Visual Media and Computers (Radio, Television, Computers)
- 1.3 Integrating ICT in Special Education With Reference To Articles 4 and 9 of UNCRPD and Goal 3 of Incheon Strategy
- 1.4 Three as of ICT Application—Access, Availability, Affordability
- 1.5 Overview of WCAG (Web Content Access Guidelines)

### **Unit 2: Using Media and Computers**

- 2.1 Media: Radio and Audio Media- Script Writing, Storytelling, Songs, etc., Television and Video in Education, Importance of Newspaper in Education
- 2.2 Computers: Functional Knowledge of Operating Computers-On/Off, Word Processing, Use Of Power Point, Excel, ICT Applications for Access to Print
- 2.3 Computer as a Learning Tool: Effective Browsing Of The Internet for Discerning and Selecting Relevant Information, Survey of Educational Sites and Downloading Relevant Material; Cross Collating Knowledge from Varied Sources
- 2.4 Computer-Aided Learning: Application of Multimedia in Teaching and Learning, Programmed Instruction; Computer-Assisted Instruction; Interactive Learning
- 2.5 E-Classroom: Concept, Organizing E-Classroom and Required Adaptations for Students with Disabilities

### **Unit 3: Visualising Technology-Supported Learning Situations**

- 3.1 Preparation of Learning Schemes and Planning Interactive Use of Audio-Visual Programme
- 3.2 Developing PPT Slide Show for Classroom Use and Using of Available Software or CDs with LCD Projection for Subject Learning Interactions
- 3.3 Generating Subject-Related Demonstrations Using Computer Software and Enabling Students to Plan and Execute Projects
- 3.4 Interactive Use of ICT: Participation in Social Groups on Internet, Creation of 'Blogs', Organizing Teleconferencing and Video-Conferencing
- 3.5 Identifying and Applying Software for Managing Disability Specific Problems

**Course Code: B 10(F)**

**Unit 1: Human Right-based Approach and Disability**

- 1.1 Human Rights-Based Approach: Concept and History
- 1.2 Principles of Human Rights-Based Approach
  - Equality and Non-Discrimination
  - Universality & Inalienability
  - Participation and Inclusion
  - Accountability and Rule of Law
- 1.3 Elements of Human Rights System
  - Legal Framework
  - Institutions
  - Development Policies & Programs
  - Public Awareness
  - Civil Society
- 1.4 Advantage of Human Rights-Based Approach
- 1.5 Implications for Disability
  - Empowerment
  - Enforceability
  - Indivisibility
  - Participation

**Unit 2: Gender and Disability**

- 2.1 Sex & Gender: Concept & Difference
- 2.2 Impairment & Disability: Concept & Difference
- 2.3 Gendered Experience of Disability
  - Public Domain: School and Outside School
  - Private and Familial Domain
  - Normalization and Social Role Valorisation
- 2.4 Gender and Disability Analysis: Techniques and Strategies
- 2.5 Psyche and Gender: Implications for Teaching

## **GENDER AND DISABILITY**

### **Unit 3: Women and Girl Child with Disability**

#### 3.1 Inclusive Equality

- Access to Family Life
- Access to Education, Vocational Training and Employment
- Access to Political Participation

#### 3.2 Factors Contributing to Disability

- Gender-Based Violence in School and Within Family
- Traditional Practices

#### 3.3 Sexual and Reproductive Health

#### 3.4 Teacher's Role in Promoting Gender Equality

#### 3.5 Gender Critique of Legislation, Government Policy and Schemes



**Course Code: B 10(G)**

**Unit 1: Braille**

- 1.1 Louis Braille and the Evolution of Braille
- 1.2 Continuing Relevance of Braille vis-a-vis Audio Material
- 1.3 Braille Signs, Contractions and Abbreviations--English Braille
- 1.4 Braille Signs and Symbols—Hindi/Regional Language
- 1.5 Braille Reading and Writing Processes

**Unit 2: Braille Devices -- Types, Description, Relevance**

- 2.1 Slate and Stylus
- 2.2 Braille Writer
- 2.3 Electronic Devices— Note takers and Refreshable Braille Displays
- 2.4 Braille Embossers
- 2.5 Braille Translation Software

**Unit 3: Other Devices - Types, Description, Relevance**

- 3.1 Mathematical Devices: Taylor Frame and Types, Abacus, Geometry Kit, Algebra Types
- 3.2 Geography: Maps--Relief, Embossed, Models
- 3.3 Science Material
- 3.4 Low Vision Aids--Optical, Non-Optical, Vision Training Material
- 3.5 Schemes and Sources of Availability

# ORIENTATION AND MOBILITY

**Course Code: B 11(A)**

## **Unit 1: Introduction to Orientation and Mobility**

- 1.1 Orientation and Mobility -- Definition, Importance and Scope
- 1.2 Basic Terminologies Associated with O&M: Trailing, Landmarks, Clues, Cues, Shoreline, Squaring Off, Clockwise Direction, Sound Masking, Sound Shadow
- 1.3 Roles of Other Senses in O&M Training
- 1.4 Special Responsibilities of Special Teacher/Educator with reference to O&M Training
- 1.5 Blindfold -- Rationale and Uses for the Teacher

## **Unit 2: Human/ Sighted Guide Technique**

- 2.1 Grip
- 2.2 Stance
- 2.3 Hand Position
- 2.4 Speed Control
- 2.5 Negotiating: Narrow Spaces, Seating Arrangements, Staircases, Muddy paths

## **Unit 3: Pre-Cane Skills**

- 3.1 Upper and Lower Body protection
- 3.2 Room Familiarization
- 3.3 Using Oral Description for Orientation
- 3.4 Search Patterns
- 3.5 Building Map Reading Skills

## **Unit 4: Cane Travel Techniques and Devices**

- 4.1 Canes -- Types, Parts, Six Considerations
- 4.2 Cane Travel Techniques: Touch Technique, Touch and Drag Technique, Diagonal Cane Technique
- 4.3 Use of Public Transport
- 4.4 Asking for Help: When and How
- 4.5 Electronic Devices, Tactile and Auditory Maps -- Description and Uses

## **Unit 5: Training In Independent Living Skills**

- 5.1 Self Care, Gait and Posture
- 5.2 Personal Grooming
- 5.3 Eating Skills and Etiquette
- 5.4 Identification of Coins and Currency Notes
- 5.5 Basics of Signature Writing

## COMMUNICATION OPTIONS: ORALISM

**Course Code: B 11(B)**

### **Unit 1: Understanding Hearing Loss in Real Life Context**

- 1.1 Basic Awareness on Paradigms of D/Deafness (Medical and Social)
- 1.2 Basic Awareness on Deafness and Communicative Access: Challenges and Concerns
- 1.3 Basic Awareness on Autonomy, Inclusion and Identity with reference to Oral Options
- 1.4 Oral/ Aural Verbal Options and Realistic Expectations of Family and Teachers
- 1.5 Importance of Neural Plasticity and Early Listening Opportunities

### **Unit 2: Advance Understanding of Oral Options**

- 2.1 Difference Between Uni Sensory and Multi Sensory Approach in Oralism
- 2.2 Oracy To Literacy: Why and How
- 2.3 Speech Reading: Need, Role and Strategies in All Communication Options
- 2.4 Training and Guidance on Aural Oral Practices for Families and Tuning Home Environment: Current Scenario, Importance And Strategies
- 2.5 Tuning Mainstream Schools/Classrooms for Aural Oral Communication: Do's and Don'ts

### **Unit 3: Skill Development Required for Oralism**

- 3.1 Practicing Interpreting Audiograms and Exposure to Goal Setting in Listening Skills
- 3.2 Practicing Motherese (Addressing/Talking to Young Children) and Age Appropriate Discourse with Children Using Appropriate Language, Turn Taking and Eye Contact
- 3.3 Practicing Fluency Skills in Verbal Communication: Spontaneous Conversations, Narrations and Loud Reading
- 3.4 Practicing Skills in Story Telling/ Narrations/ Jokes/ Poems/ Nursery Rhymes
- 3.5 Ongoing Monitoring and Assessing Auditory Functioning and Speech Development: Reading Model Formats Used for the Purpose (Checklists, Recordings, Developmental Scales)

### **Unit 4: Skill Development Auditory Verbal (AV) Approach**

- 4.1 AV Approach: Meaning, Misconcepts and Justification
- 4.2 Stages of Auditory Hierarchy
- 4.3 Understanding Listening Strategies, Techniques of AV Approach and Their Relation to Listening Environment
- 4.4 Reading Model Plans and Observing a Few Weekly Individual Sessions
- 4.5 Developing Instructional Material for AVT Sessions Linking Listening, Language and Cognition

### **Unit 5: Implementing Oralism and AV Approach in Indian Special Schools & Summing up**

- 5.1 Use Of Oralism and AV Approach in Indian Special Schools: Current Scenario
- 5.2 Oralism / AV Approach: Prerequisites for Special Schools
- 5.3 Strategies of Implementation Oral Communication Policy and Fulfilling Prerequisites
- 5.4 Resource Mobilization For Listening Devices: (ADIP, Organized Charity, CSR, Fund Raising Events, Web Based Fund Raising)
- 5.5 Reflections On The Course: From Theory to Practice to Initiating Change



# COMMUNICATION OPTIONS: MANUAL (INDIAN SIGN LANGUAGE)

**Course Code: B 11(C)**

## **Unit 1: Understanding Deafness in Real Life Context**

- 1.1 Basic Awareness of Paradigms of D/Deafness (Medical and Social)
- 1.2 Basic Awareness of Deafness and Communicative Challenges / Concerns
- 1.3 Basic Awareness on Deafness with Reference to Culture, Language, Identity, Minority Status, Deaf Gain, Literacy and Inclusion
- 1.4 Basic Awareness of Difference between ISL and ISS; Myths and Facts
- 1.5 Importance of Neural Plasticity and Early Language Opportunities

## **Unit 2: Advance Understanding of Manual Options and Indian Scenario**

- 2.1 Use of Simcom and Educational Bilingualism in Indian Schools: Current Scenario
- 2.2 Challenges, Prerequisites and Fulfilling Prerequisites
- 2.3 Monitoring and Measuring Development of ISL/ISS in Students: Receptive and Expressive Mode
- 2.4 Training and Guidance for Families and Tuning Home Environment: Current Scenario and Strategies
- 2.5 Tuning Mainstream Schools/Classrooms for Students Using Manual Communication: Do's and Don'ts

## **Unit 3: ISL Skill Development: Middle Order Receptive and Expressive Skills**

- 3.1 Practicing 'Motherese' (Tuning Language to Suit Young Children) and Age Appropriate Discourse with Children with Appropriate Language, Turn Taking and Eye Contact
- 3.2 Practicing Natural Signing in Short Common Conversations
- 3.3 Practicing Natural Signing in Stories/Poems/Narrations/Jokes
- 3.4 Practicing Natural Signing in Discussing Emotions, Expansion of Ideas and Current Affairs
- 3.5 Practicing Group Dynamics

## **Unit 4: ISL Skill Development: Towards Higher Order Receptive and Expressive Skills**

- 4.1 Learning to Express Gender, Number, Person, Tense, Aspect
- 4.2 Practicing Sentence Types: Affirmative, Interjections, Imperative and Interrogative and Negativization
- 4.3 Practicing Sentence Types: Simple, Complex, Compound
- 4.4 Observing Using ISL in Classrooms - Social Science
- 4.5 Observing Using ISL in Classrooms - Science / Mathematics

## **Unit 5: ISS/ ISL Skill Development and Course Conclusions**

- 5.1 Practicing Markers (Local Language)
- 5.2 Practicing Syntax in Conversations and Discussions
- 5.3 Observing Using ISS/ISL in Classrooms for School Subjects
- 5.4 Resource Mobilization for Skill Development Training (Organized Charity Sources, CSR, Fund Raising Events, Web Based Fund Raising)
- 5.5 Reflections on the Course: From Theory to Practice to Initiating Change



# AUGMENTATIVE AND ALTERNATIVE COMMUNICATION

Course Code: B 11(D)

## **Unit 1: Organizational frame work for Communication:**

- 1.1 Normal development of speech, language and communication
- 1.2 Factors that influence communication, speech and language in relation to each other
- 1.3 Levels of communication in children
  - 1.3.1 Functional (Emergent)
  - 1.3.2 Situational ( Context Dependent)
  - 1.3.3 iii. Independent ( Creative)

## **Unit 2: Basic principles of AAC interventions:**

- 2.1 Child - Child capacity
- 2.2 Child capacity and context
- 2.3 Working towards symbolic expression
- 2.4 Communication skills and
- 2.5 Functions

## **Unit 3: Areas of AAC Assessment:**

- 3.1 Sensory areas
- 3.2 Cognition , communication and language
- 3.3 Posture and positioning. Motor planning and control
- 3.4 Scanning
- 3.5 Environment, Interaction & Symbols

## **Unit 4: Context of Communication:**

- 4.1 Partner /skills , user skills and environment
- 4.2 Competency development - types of competencies and its development
  - 4.2.1 Linguistic competence
  - 4.2.2 Operational Competence
  - 4.2.3 Social competence
  - 4.2.4 Strategic competence

## **Unit 5: Introduction to communication tools and Access Mode:**

- 5.1 Types of AAC devices and systems
  - 5.1.1 No Technology
  - 5.1.2 Low Technology
  - 5.1.3 High Technology
- 5.2 Access to communication charts - hand, finger, eye point
- 5.3 Access to devices:
  - 5.3.1 Switches - hand switch , blow switch, infrared devices etc
  - 5.3.2 Software -scan mode combined with a switch
- 5.4 Selection of AAC
  - 5.4.1 Child competency and environment
  - 5.4.2 Design, Access, Motor, Devices

5.5 Challenges in the development of AAC and Literacy

5.5.1 Grammar ; spelling

5.5.2 Building **Vocabulary:** and richness of language

5.5.3 Motor expression

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# MANAGEMENT OF LEARNING DISABILITY

**Course Code: B 11(E)**

## **Unit 1: Learning Disabilities: Types**

- 1.1 Verbal learning disabilities: Dyslexia, Dysgraphia, Dyscalculia.
- 1.2 Non-verbal learning disabilities
- 1.3 Language Disorders
- 1.4 Associated Conditions: ADHD & ADD
- 1.5 Emotional & Behavioral problems.

## **Unit 2: Assessment of Basic Curricular Skills**

- 2.1 Assessment of Readiness Skills
- 2.2 Assessment of Reading, Writing and Math skills
- 2.3 Teacher made test
- 2.4 Standardized Tests: Need, Types & Purpose
- 2.5 Interpretation of Test report

## **Unit 3: Intervention Strategies in Basic Skills of Learning**

- 3.1 Language skills
- 3.2 Reading
- 3.3 Writing
- 3.4 Maths skills
- 3.5. Study skills

## **VOCATIONAL TRAINING, TRANSITION & JOB PLACEMENT**

**Course Code: B 11(F)**

### **Unit 1: Fundamentals & Assessment of Vocational Rehabilitation**

- 1.1. Definition, meaning and scope of Vocational Education
- 1.2. Legislations, policies, agencies, schemes, concessions & benefits for PWDs with respect to employment
- 1.3. Approaches and models of Vocational training
- 1.4. Assessment, Evaluation of Generic skills & Specific job skills using various tools
- 1.5. Approaches & Principles of vocational assessment

### **Unit 2: Vocational Transition & Curriculum Planning**

- 2.1. Concept, meaning, importance of transition
- 2.2. Vocational transition models
- 2.3. Transitional Planning at pre-vocational & post-vocational level
- 2.4. Development of Individualized Vocational Transitional Plan
- 2.5. Development of Vocational Curriculum

### **Unit 3: Process of Vocational Rehabilitation & Placement**

- 3.1. Types of Employment Settings
- 3.2. Process of Job Placement & Creation of Need-based Employment Settings
- 3.3. Adaptations, Accommodation, Safety Skills and First Aid
- 3.4. Self Advocacy & Self Determination Skill Training
- 3.5. Equal opportunities and attitudes towards persons with disabilities

# AREA-C

## DISABILITY SPECIALIZATION COURSES

Institutions / Organizations offering B.Ed.Spl.Ed. are expected to decide on Specific Disability Area for Specialization out of ASD / HI/ LD / MR(ID) / MD / VI

C12	Assessment and Identification of Needs
C13	Curriculum Designing, Adaptation and Evaluation
C14	Intervention and Teaching Strategies
C15	Technology and Disability
C16	Psycho Social and Family Issues

Adda247

# **Disability Specialization**

## **AUTISM SPECTRUM DISORDERS**

**Adda247**

**Course Code: C 12**

**Unit 1: Introduction to Autism Spectrum Disorders (ASD)**

- 1.1 Concept and definition of Autism Spectrum Disorders
- 1.2 The ASD Triad
- 1.3 Historical perspective to ASD
- 1.4 Prevalence and incidence of ASD
- 1.5 Theoretical perspective: Empathising-Systemising Theory, Central Coherence Theory, Executive Dysfunction Theory

**Unit 2: Types and Characteristics**

- 2.1 Autism
- 2.2 Asperger's Syndrome
- 2.3 Rett Syndrome
- 2.4 Childhood Disintegrative Disorders
- 2.5 Pervasive Developmental Disorders-not Otherwise Specified

**Unit 3: Related Disorders**

- 3.1 Hyperlexia
- 3.2 Semantic pragmatic and sensory integration disorders
- 3.3 Non-Verbal Learning Disability
- 3.4 Prader Willis Syndrome
- 3.5 Fragile X Syndrome

**Unit 4: Identification and Assessment**

- 4.1 Screening, diagnosis and assessment
  - Concept and definition
  - Tools: checklist, standardized test & criteria, observation
- 4.2 Screening Tools: CHAT; MCHAT; Infant-Toddler Checklist; QCHAT; Autism Spectrum Screening Questionnaire
- 4.3 Diagnostic Criteria and Tools: DSM-V; ICD-10; ADOS, ADI-R, CARS, GARS, ISAA
- 4.4 Areas of Assessment of
  - Psychological: WISC, Malins, Binet-Kamath
  - Developmental: Infant-Toddler Checklist, Child Developmental Screening
  - Educational: Psycho-Educational Profile; Adolescents and Adults Psycho Educational Profile, Curricular based assessment, FACP, EACCID
  - Functional: Functional Analysis
  - Behavioral: Vineland Social Maturity Scale, ABS, Assessment of Basic Language and Learning Skills (ABBLS), Behavior Problem Inventory, BASIC-MR, and BASAL-MR
- 4.5 Teacher competencies in assessment

## **Unit 5: ASD- Differential Assessment**

- 5.1 Need for differential assessment
- 5.2 Assessment of Language and Communication
- 5.3 Assessment of Perceptual motor skills
- 5.4 Assessment of sensory processes
- 5.5 Critical aspects of assessment: training and procedure





# **CURRICULUM DESIGNING, ADAPTATION AND EVALUATION**

**Course Code: C 13**

## **Unit 1: Development of Curriculum**

- 1.1 Curriculum: concept, aims and principles
- 1.2 Orientations to Curriculum Development
  - a. Child centred
  - b. Society-centred
  - c. Knowledge-centred
  - d. Eclectic
- 1.3 Approaches: child-centred, activity-centred, Ecological approach
- 1.4 Types of curriculum: core, support, collateral , hidden and co-curriculum
- 1.5 Person Centred Program and Individualized Educational Program

## **Unit 2: Curriculum Development and Teaching**

- 2.1 Community and learner needs assessment
- 2.2 Aims, Goals and Objectives
- 2.3 Selection of teaching methods and material
  - Microteaching
  - Scaffolding
  - T-L aids
- 2.4 Implementation and recording
- 2.5 Evaluation

## **Unit 3: Curricular Focus for Children with ASD**

- 3.1 Language and social communication
- 3.2 Self-care
- 3.3 Social behaviour
- 3.4 Academic skills
- 3.5 Pre-vocational and leisure

## **Unit 4: Curricular Adaptation for Inclusive Education of Children with ASD**

- 4.1 Adaptation of curriculum for children with ASD
- 4.2 Types of adaptation needed for children with ASD
  - a. Content
  - b. Instructional
  - c. Ecological
- 4.3 Stages of adaptation
  - a. General adaptation
  - b. Specific adaptation
- 4.4 Accommodation & modification

- a. Perceptual style
  - b. Cognitive style
  - c. Social style
- 4.5 Accommodation of co-curricular activities and learning material

**Unit 5: Methods of Evaluating Children with ASD**

- 5.1 Evaluation: definition and purpose
- 5.2 Observation
- 5.3 Record Review
- 5.4 Teacher made test tests
- 5.5 Standardized rating scales



**Course Code: C 14**

**Unit 1: Developmental Approach**

- 1.1 Early intervention
- 1.2 Floor time
- 1.3 LEAP (Learning Experience Alternative Program)
- 1.4 Early Start Denver Model
- 1.5 JASPER (Joint Attention Symbolic Play Engagement Regulation)

**Unit 2: Behavioural Approach**

- 2.1 Applied behavioural analysis
- 2.2 Discrete trial training
- 2.3 TEACCH
- 2.4 Analysis of Verbal Behaviour
- 2.5 Pivotal Response Training

**Unit 3: Cognitive Approach**

- 3.1 Mind reading
- 3.2 Meta-cognitive strategies
- 3.3 Cognitive behaviour modification
- 3.4 Teaching of reading and writing
- 3.5 Teaching arithmetic and related areas (money and time)

**Unit 4: Social Approach**

- 4.1 Social story
- 4.2 Comic strips
- 4.3 Peer-mediated programs
- 4.4 Sex education and Social behaviour
- 4.5 Self-regulation

**Unit 5: Teaching Methods and Strategies**

- 5.1 Physical environment and classroom organization
- 5.2 Task analysis & reinforcement
- 5.3 Joint Action Routines
- 5.4 Visual Strategies
- 5.5 Visual Activity Schedules

**Course Code: C 15**

**Unit 1: Etiological Aspects**

- 1.1 Genetic factors
- 1.2 Prenatal factors
- 1.3 Perinatal factors
- 1.4 Postnatal factors
- 1.5 Early Signs and Screening for ASD

**Unit 2: Communication Aspects**

- 2.1 Language, Communication, Speech: concept and definition
- 2.2 Language
  - 2.2.1 Components: Semantics, Syntax, Pragmatics
  - 2.2.2 Disorders: Echolalia, Perseverance, Neologism
- 2.3 Communication: Process and Types
- 2.4 Speech Disorders: Articulation, Fluency and Voice Disorders
- 2.5 Interventions: AAC, PECS, Makaton, and Visual Strategies

**Unit 3: Sensory Motor Aspects**

- 3.1 Sensory processes: underlying concepts
- 3.2 Sensory processes in ASD
- 3.3 Executive function deficits
- 3.4 Sensory integration therapy
- 3.5 Sensory integration: aids and devices

**Unit 4: Assistive Technology (AT) and Assistive Devices (AD)**

- 4.1 AT and AD: Concept and definition
- 4.2 AD Categories: Low-Tech devices, Mid-Tech devices, High-Tech Devices
- 4.3 AT for communication: Dynavox, Avaz, Kathamala
- 4.4 AT for positive behaviour support and recreation: visual schedules, social stories; use of social media, electronic musical instruments
- 4.5 AT for academic learning: i-pad applications, computer assisted instructions

**Unit 5: Need Assessment and Planning for Assistive Technology**

- 5.1 Assessment areas: Communication, Academic, Motor, Behaviour, Organization, Social Interactions, Transitions, Other concerns
- 5.2 Assessment of environmental support: Visual clutter, Lighting, Computer Operating System, Staff placement, Other concerns
- 5.3 Preparation for AT: Selection of devices, Training for device usage
- 5.4 Selection of goals: Verbal communication, written communication, Academic participation, Social interaction, Transition
- 5.5 Integration of AT and AD in teaching-learning environment

# ADULTHOOD AND FAMILY ISSUES

**Course Code: C 16**

## **Unit 1: Transition from adolescence to adulthood for a person with ASD**

- 1.1 Individual Transition Plan
- 1.2 Vocational training and higher education
- 1.3 Employment: Open, supported, sheltered
- 1.4 Mental health in transition
- 1.5 Self-disclosure and Advocacy

## **Unit 2: Preparedness for Adulthood**

- 2.1 Critical thinking and problem solving
- 2.2 Supported decision making
- 2.3 Housing and living arrangements
- 2.4 Sexuality and Marriage
- 2.5 Financial management and Guardianship

## **Unit 3: Needs and role of Family and Community**

- 3.1 Parents- needs and responsibilities
- 3.2 Siblings- challenges and expectations
- 3.3 Peers and Extended family- role and responsibilities
- 3.4 Guidance and Counselling
- 3.5 Community participation and rehabilitation

# **Disability Specialization**

**HEARING IMPAIRMENT**

**Adda247**

## ASSESSMENT AND IDENTIFICATION OF NEEDS

**Course Code: C 12**

### **Unit 1: Early Identification of Hearing Loss: Need and Strategies**

- 1.1 Need for early identification of hearing loss
- 1.2 Overview to behavioural and objective techniques in screening for hearing loss
- 1.3 Team members involved in hearing screening and their role
- 1.4 Use of checklists and behavioural observation in early identification of hearing loss by school teachers (congenital & acquired)
- 1.5 Referral of children based on signs and symptoms of hearing loss

### **Unit 2: Audiological Assessment**

- 2.1 Orientation: Sound, Physical and psychological parameters/attributes, concept of dBHL vs dB SPL, Auditory milestones in typical children (0-2 years)
- 2.2 Assessment & methods of assessment: Subjective & Objective tests; Orientation to these tests and their importance
- 2.3 Audiometer: Block diagram, parts & use; Types of audiometry [sound field (BOA, VRA) & close field]; role of special educators in conditioning for pure tone audiometry
- 2.4 Audiogram: Understanding of audiogram and its implication in assessing the educational needs of children with different types and degrees of hearing loss.

## 2.5 Concept of unaided, aided audiograms, Speech spectrum and its applications

### **Unit 3: Assessment of Language & Communication**

- 3.1 Communication: Concepts and types (Linguistic versus Non Linguistic)
- 3.2 Receptive and Expressive Language: Concept, Types (verbal and manual) and Structure
- 3.3 Developmental milestones in typically growing children; Impact of deafness on communication and language with reference to clinical (type, degree, onset) and environmental (parental participation, access to language early intervention services) factors
- 3.4 Assessing communication and language: Developmental checklists, Scales, Standardized tools and assessing language samples using parameters of measurement (productivity, complexity, correctness and communicativeness)
- 3.5 Identification of needs related to communication and language

### **Unit 4: Assessment of Speech**

- 4.2 Respiration and Phonation: Pre-requisites, process, types and need for assessment
- 4.2 Basics of Articulation and phonology (active and passive articulators; classification of vowels and consonants; assessment of articulation)
- 4.3 Supra segmental aspects of speech and its assessment
- 4.4 Milestones of speech development in typically developing children
- 4.5 Speech Intelligibility: Concept, Factors & Assessment

### **Unit 5: Educational Assessment and Identification of Needs**

- 5.1 Educational assessment: Concept and Scope
- 5.2 Factors affecting educational performance: individual, family and environment
- 5.3 Types of Assessment: Norm referenced and Criterion Referenced test, Comprehensive and Continuous assessment, Summative and Formative, Formal and Informal, Conventional & alternate, Performance based and Curriculum based
- 5.4 Tools and techniques of Educational Assessment: Observations, Interviews, Developmental scales, Standardized and Criterion based tests, Teacher Made Tests at different levels and classroom assessment techniques (Conventional and Modern)
- 5.5 Current trends and challenges in assessment: Independent, dual purpose and constructivist perspective and adaptations



## **CURRICULUM DESIGNING, ADAPTATION AND EVALUATION**

**Course code: C 13**

### **Unit 1: Curriculum and Its' Designing**

- 1.1. Curriculum-Concept, Types and Models
- 1.2. Approaches and Steps for Curriculum designing
- 1.3. Curricular needs of children with hearing impairment in scholastic areas
- 1.4. Curricular needs of children with hearing impairment in non-scholastic areas
- 1.5. Curricular framework for 21st Century.

### **Unit 2: Developing Literacy Skills: Reading**

- 2.1. Pre-requisites for reading and emergent reading skills
- 2.2. Assessment of reading skills at different levels
- 2.3. Approaches and Strategies to develop reading skills and independent reading
- 2.4. Types and Models of developing reading skills
- 2.5. Challenges and Remedial strategies

### **Unit 3: Developing Literacy Skills: Writing**

- 3.1. Pre-requisites for writing and emergent writing skills
- 3.2. Assessment of written language at different levels
- 3.3. Components and types of writing

- 3.4. Steps and Strategies in Developing Writing
- 3.5. Challenges and Remedial Strategies

**Unit 4: Curricular Adaptation**

- 4.1. Curricular Adaptation- Meaning and Principles
- 4.2. Need Assessment and decision making for Adaptation
- 4.3. Adapting Curriculum- Content, Teaching-learning Material, and Instruction
- 4.4. Types of Adaptation and Process
- 4.5. Adaptation and Accommodations in Student's Evaluation and Examinations

**Unit 5: Curricular Evaluation**

- 5.1. Concept, Need for Curricular Evaluation
- 5.2. Factors associated with Curricular Evaluation (Learner, Content, Instructor and Resources)
- 5.3. Areas of Curricular Evaluation: Context, Input, Process and Product
- 5.4. Methods and Tools for Curricular Evaluation
- 5.5. Challenges in Curricular Evaluation



# INTERVENTION AND TEACHING STRATEGIES

**Course code: C 14**

## **Unit 1: Need & Strategies for Early Intervention of Hearing Loss**

- 1.1 Parent-infant programmes for children with HI: Overview, need, requirements and plan of action.
- 1.2 Pre-school training programmes: Overview, need, requirements and plan of action.
- 1.3 Individual Speech-Language Therapy Programmes: Overview, need, requirements and plan of action.
- 1.4 Impact of early intervention on school outcomes
- 1.5 Intervention of late identified children with hearing impairment: Challenges & Strategies

## **Unit 2: Auditory Learning (AVT & Auditory Training) & Speech Reading**

- 2.1 Concept of 'Auditory Listening': Uni sensory & Multisensory approaches
- 2.2 Auditory training: Importance, types (Individual & Group) and Stages
- 2.3 Auditory Verbal Therapy: Principle, importance and role of teacher
- 2.4 Auditory Training and AVT: Pre-requisites, challenges, similarities & differences
- 2.5 Speech Reading: Concept, importance, Pre-requisites, challenges and Role of teacher



### **Unit 3: Speech Intervention Strategies**

- 3.1 Approaches to teaching speech: Auditory Global Approach; Multi-sensory Syllable unit approach; Ling's Approach
- 3.2 Formulation of Lesson plan: Long term goals; Short term goals; Activities for teaching correct production of various vowels and consonants
- 3.3 Orientation to acoustics of speech
- 3.4 Strategies for production of speech: Modelling & Shaping through Auditory, Visual, Tactile modalities
- 3.5 Individual and Group speech teaching: Strengths and challenges

### **Unit 4: Communication and Language Teaching Strategies**

- 4.1 Methods of teaching language: Natural, Structural and Combined
- 4.2 Principles and Techniques of developing language
- 4.3 Communication options: Compare and contrast
- 4.4 Communication options: justification and challenges
- 4.5 Tuning the environment (Home & School) for facilitating language & Communication

### **Unit 5: Educational Intervention Strategies**

- 5.1 Educational Intervention: Concept, Need & Areas (curricular & co curricular) & Types of educational intervention (group, individual, developmental, remedial)
- 5.2 Principles and practices in early educational intervention: Family centred, contextualised (natural & inclusive environment) & integrated (collaborative) support and services
- 5.3 Maxims, Methods of teaching & Lesson planning (group, individual, developmental, and remedial)
- 5.4 Partnership of various professionals & agencies in educational intervention
- 5.5 Child & Family Outcomes of Early Educational Intervention

## TECHNOLOGY AND DISABILITY

Course code: C 15

### Unit 1: Listening Devices and Classroom Acoustics

- 1.1 Listening devices: Types (Individual & Group), functioning of Hearing aids, classification of hearing aids based on style (body level, ear level), technology (analog, programmable, digital), Ling's six sound test and other outcome measures
- 1.2 Ear moulds: Types, Importance, Care & maintenance
- 1.3 Classroom amplification devices: Individual, Speech Trainer & group, Hard wire, loop induction, infra-red & FM systems, their importance in educational management
- 1.4 Cochlear Implant, middle ear implant, BAHA & Auditory Brainstem implant: Candidacy, components, functioning & importance with special reference to ADIP 2014 scheme
- 1.5 Comparison between individual hearing aids, group hearing aids & cochlear implant and their care & maintenance

### Unit 2: Technology for Management for Speech

- 2.1 Computer based training aids/equipment for management of speech (Dr. Speech; Vaghmi; Speech viewer)



- 2.2 Use of computer based speech equipment for management of voice in children with hearing impairment
- 2.3 Use of computer based speech equipment for management of suprasegmental features of speech in children with hearing impairment
- 2.4 Basic infrastructure required for using computer based speech training aids/equipment
- 2.5 Tele Speech Therapy

### **Unit 3: Technology Facilitating Language & Communication**

- 3.1 Low cost technology and its application in development of teaching learning material
- 3.2 Electronic and web-based technology applications: TV, Digital recorders, Downloaded AV films, Search engines, Online learning material, Language apps
- 3.3 Web based technology for using and training of ISL
- 3.4 Sign to text and Text to sign technology
- 3.5 Augmentative and Alternative communication for children with Hearing Impairment with additional/associating concerns

### **Unit 4: Technology Facilitating Education**

- 4.1 Technology and its impact on education: Changing Trends in teaching & learning
- 4.2 Technology products for educational purposes: Listening (Induction loop/FM/IR), Visual (Speech to text/text to speech) Audio-Visual (computer based learning & self-learning packages, Multimedia)
- 4.3 Technology Based Educational Services: Online learning, Web based learning, Computer assisted Learning, Video remote interpreting, C-Print technology, Open, Close and Real time Captioning
- 4.4 ICT and education of children with Hearing Impairment: Planning, Implementation & Evaluation of teaching-learning
- 4.5 Future technologies: Universal Design: Meaning & Scope

### **Unit 5: Resource Mobilisation for Technology**

- 5.1 Agencies for Aids & Appliances: Government and non-government
- 5.2 Eligibility criteria for availing funding under Government schemes
- 5.3 Procedure for availing funding from different agents
- 5.4 Challenges encountered with cost involved in maintenance of devices after availing funding and ways to overcome
- 5.5 Agencies/Strategies to locate required human resources for various services and referrals

5. Compile a list of government and non-government funding agencies for aids & appliances.

### **Transaction & Evaluation**

Lecture cum Demonstration, Self-study, Assignments, Seminar, Debate, Quiz

### **Essential Readings**

- Allum, D.J. (Ed). (1996). Cochlear Implant Rehabilitation in Children and Adults. Whurr Publishers, London.
- Andersson, C. (2014). Assistive Technology for the Hearing-impaired, Deaf and Deaf-blind. Springer, New York.
- Berg, F. (2008). Speech Development Guide for Children With Hearing Loss. Plural Publishing, San Diego.
- Bess, F.H., & Humes, L.E. (1990). Audiology: The fundamentals. Williams & Wilkins, London.
- Finitzo-Hieber, T. (1981). Classroom Acoustics. In R. J. Roeser & M. P. Downs (Eds.) Auditory disorders in school children. Theime-Stratton, New York.
- Katz, J. (1978, 1985, 1994). Handbook of Clinical Audiology. (2<sup>nd</sup>, 3<sup>rd</sup> & 4<sup>th</sup> eds.). Baltimore: Williams and Wilkins.
- Kumar, K. L. (2009). Educational Technology: A Practical Textbook for Students, Teachers, Professionals and Trainers. Amazon Pub.
- Lynas, W. (1994). Communication Options in the Education of Deaf Children. Whurr Publishers Ltd, London.
- Maltby, M.T. (1994). Principles of Hearing Aid Audiology. Whurr Publishers, London.
- Mathew, S.M. (2012). Technology for persons with hearing impairment. Status of Disability in India, RCI, New Delhi.
- Moores, D. F. (1997). Educating the deaf, Houghton Nifflin Compan
- Rapp, W.H. (2014). Universal design for learning in action. Baltimore MD: Brooks
- Riekehof, L. L. (1978), The joy of learning signs, Gospel publishing House, Missouri
- Schirmer, B. R. (2001). Psychological, Social and Educational Dimensions of Deafness. Allyn and Bacon, Boston.
- Stewart, D.A., & Kluwin, T.N. (2001). Teaching Deaf & Hard of Hearing Students: Content, Strategies & Curriculum. Allyn & Baccon, London.
- Taylor, B.M., & Gustav, H. (2011). Fitting and Dispensing Hearing Aids. Plural Publishing, San Diego.
- Tweedie, J. (1987). Children's Hearing Problems, Their Significance, Detection and Management. The Bath Press, Bristol.

- 2.2 Use of computer based speech equipment for management of voice in children with hearing impairment
- 2.3 Use of computer based speech equipment for management of suprasegmental features of speech in children with hearing impairment
- 2.4 Basic infrastructure required for using computer based speech training aids/equipment
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- 4.3 Technology Based Educational Services: Online learning, Web based learning, Computer assisted Learning, Video remote interpreting, C-Print technology, Open, Close and Real time Captioning
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- 5.3 Procedure for availing funding from different agents
- 5.4 Challenges encountered with cost involved in maintenance of devices after availing funding and ways to overcome
- 5.5 Agencies/Strategies to locate required human resources for various services and referrals



## PSYCHOSOCIAL AND FAMILY ISSUES

Course code: C 16

### Unit 1: Psychosocial Aspects and Disability

- 1.1 Overview of psychosocial development; wellbeing and quality of life
- 1.2 Implications of hearing impairment on domains of psychosocial development
- 1.3 Role of family in psychosocial development of children with hearing impairment
- 1.4 Role of peers and community in psychosocial development of children with hearing impairment
- 1.5 Challenges and issues in psychosocial development of children with hearing impairment

### Unit 2: Family Needs

- 2.1 Identifying Family Needs for information, decision making, skill transfer and referral
- 2.2 Fostering family's acceptance of child's impairment and creating a positive environment
- 2.3 Building parents' confidence for making informed choices (communication options, options for listening devices, school placement) and Advocacy
- 2.4 Supporting family in raising children with hearing impairment: Facilitating availing of concessions, facilities and scholarship & other benefits
- 2.5 Encouraging family participation in self-help groups and family support networking

### **Unit 3: Family Empowerment**

- 3.1 Encouraging family centred practices, parent self-efficacy belief and family involvement in child's learning and parenting
- 3.2 Encouraging family acceptance of listening devices and ensuring its regular use
- 3.3 Supporting family in fostering and developing communication and language
- 3.4 Involving family in fostering and developing play, recreation and values
- 3.5 Encouraging family involvement in educational programme and participation in community based rehabilitation programme



# **Disability Specialization**

**LEARNING DISABILITY**

**Adda247**

## ASSESSMENT AND IDENTIFICATION OF NEEDS

**Course Code: C 12**

### **Unit 1: Introduction to Learning Disability (LD)**

- 1.1 LD: Definition and concept
- 1.2 History of LD
- 1.3 Etiology of LD- medical and social
- 1.4 Co-morbidity with LD - ADHD
- 1.5 LD across the life span

### **Unit 2: Types of LD**

- 2.1 Specific LD in Reading
- 2.2 Specific LD in Writing
- 2.3 Specific LD in Mathematics
- 2.4 Dyspraxia
- 2.5 Non-verbal LD

### **Unit 3: Assessment of LD**

- 3.1 Concept of screening and identification
- 3.2 Identification criteria - DSM 5
- 3.3 Differential diagnosis
- 3.4 Assessment tools - standardized (WISC, SPM, CPM, DTLTD, DTRD, BCSLD, GLAD, Aston Index), CRTs and NRTs, TMTs
- 3.5 Portfolios, checklists, rating scales, anecdotal records, observation schedules

**Unit 4: Domains of Assessment**

- 4.1 Motor
- 4.2 Perceptual
- 4.3 Cognitive
- 4.4 Social-Emotional
- 4.5 Language

**Unit 5: Assessment of Curricular Areas**

- 5.1 Readiness skills
- 5.2 Reading
- 5.3 Spelling
- 5.4 Writing
- 5.5 Mathematics



# CURRICULUM DESIGNING, ADAPTATION AND EVALUATION

Course Code: C 13

## Unit 1: Curriculum Design

- 1.1 Curriculum design— Concept, Definition and Principles
- 1.2 Principles of Inclusive Curriculum
- 1.2 Types of curriculum— Core, Collateral, Support, Hidden
- 1.3 Universal design of learning for curriculum development
- 1.4 NCF
- 1.5 Curriculum Design and Development: Subject centred, learner centred (CWLD), Learning centred

## Unit 2: Curriculum Hierarchies

- 2.1 Reading (English and any Regional language)
- 2.2 Writing
- 2.3 Mathematics
- 2.4 Science
- 2.5 Social studies

## Unit 3: Instructional Planning

- 3.1 Models of instructional planning — ADDIE
- 3.2 Taxonomies of learning — Cognitive (Bloom's and Anderson), Psychomotor & Affective

- 3.3 Elements of lesson plan - 5 E plan
- 3.4 Models of teaching - CAM,
- 3.5 Pyramid plan

**Unit 4: Adaptation, Modification, Accommodation**

- 4.1 Definition and concept of adaptation, modification, accommodation
- 4.2 Principles and steps of adaptation
- 4.3 Differentiated instruction
- 4.4 IEP
- 4.5 Classroom management - cooperative, collaborative, arrangement

**Unit 5: Assessment & Evaluation**

- 5.1 Assessment & Evaluation- Concept, definition, scope
- 5.2 Types of Assessment- Alternative, Authentic, Performance based, Subject based portfolio
- 5.3 Evaluation — Formative, Summative, CCE
- 5.4 Development of question paper (table of specifications)
- 5.5 Tools of evaluation- Rubrics grading, marking schemes



# INTERVENTION AND TEACHING STRATEGIES

**Course Code: C 14**

## **Unit 1: Conceptual Framework of Educational Interventions**

- 1.1 Definition, purpose, scope and principles of educational intervention
- 1.2 Curriculum intervention: gap analysis and linkages with demands of school curriculum (Diagnostic Prescriptive Teaching)
- 1.3 Steps of intervention
- 1.4 Cascade of services and Response to Intervention
- 1.5 Issues and ethics in educational intervention

## **Unit 2: Educational Interventions for Processing Deficit**

- 2.1 Attention
- 2.2 Perception
- 2.3 Memory
- 2.4 Thinking
- 2.5 Meta-cognition

## **Unit 3: Reading and Writing Interventions**

- 3.1 Principles of intervention in reading and writing
- 3.2 Strategies for developing word recognition skills, fluency and comprehension
- 3.3 Strategies for developing handwriting, spelling and written expression



- 3.4 Strategies for Reading and writing across the curriculum
- 3.5 Strategies for differentiation and inclusion in the classroom

**Unit 4: Interventions for Mathematics**

- 4.1 Principles for interventions in mathematics
- 4.2 Strategies for developing mathematical concepts
- 4.3 Strategies for developing computation, automaticity [timed tasks] and application
- 4.4 Strategies for problem solving
  - 4.5 Accommodations [Calculators, Computers] in the mainstream classroom

**Unit 5: Intervention in Life Skills**

- 5.1 Strategies for developing of Social skills
- 5.2 Strategies for developing Study skills
- 5.3 Strategies for self-assessment and advocacy
- 5.4 Strategies for soft skills [presenting self, time management, decision making]
- 5.5 Preparation for Independent Living; Career Planning, leisure and recreation



# TECHNOLOGY & DISABILITY

Course Code: C 15

## Unit 1: Concept of Technology

- 1.1 Meaning, Nature, Scope and Significance of Technology
- 1.2 Types /tools of technology — Projector, Smart board, Software and ipad, ipod, Tablets, Mobiles
- 1.3 Technology integration vs technology use in the curriculum
- 1.4 Assistive technology: Meaning and scope
- 1.5 Role & Use of AT for children with LD

## Unit 2: Learning Needs of CWLD

- 2.1 Communication
- 2.2 Reading
- 2.3 Writing
- 2.4 Mathematics
- 2.5 Self management

## Unit 3: Technology for Presentation & Expression (Input and Output)

- 3.1 Classroom Presentation & Expression: Concept & scope
- 3.2 Visual presentation - Large print displays, alternative colours to the screen, colour coding, smart boards, Multimedia Presentations, screen magnifiers
- 3.3 Auditory - text to voice, screen readers, FM Listening Systems, podcast

3.4 Cognitive — graphic organisers

3.5 Consideration for selection of tools — no tech, low tech, high tech, low cost, high cost

#### **Unit 4: Technology for Classroom Engagement**

4.1 Classroom engagement — Meaning and components

4.2 Reading ,Writing & Mathematics - Talking books, recorder,Optical character recognition , Speech recognition systems, Alternative writing surfaces , pencil grips , podcast, Proof reading software,Talking calculators, Electronic math worksheets, fluidity software

4.3 Organising - sticky notes, highlighter pens, or highlighter tape, graphic organisers, digital organisers

4.4 Types programme- drill & practice, Simulations, Games, Tutorial

4.5 Consideration for selection of programmes and tools in an inclusive class

#### **Unit 5: Trends & Issues in Using Technology**

5.1 Digital natives & Immigrants

5.2 From isolation to inclusion

5.3 Parent/family involvement

5.4 Cyber Safety

5.5 Evaluation of impact of technology— Social, ethical and human



# PSYCHO-SOCIAL AND FAMILY ISSUES

**Course Code: C 16**

## **Unit 1: Overview of Psycho-social Domains**

- 1.1 Psychosocial domains- Meaning and components- Cognitive, Affective, Social
- 1.2 Stages of Psychosocial development
- 1.3 Psycho-social characteristics of children with LD
- 1.4 Manifestations of psychosocial behaviour at home, school and society
- 1.5 Causative factors — self and others

## **Unit 2: Family Dynamics**

- 2.1 Family structure and its functioning
- 2.2 Parenting styles and home environment
- 2.3 Needs and concerns of family
- 2.4 Needs and concerns of child with LD
- 2.5 Empowering Parents- Resource management, legal provisions

## **Unit 3: Nurturing Social Emotional Wellbeing**

- 3.1 Strategies for developing positive self-concept
- 3.2 Social skill training
- 3.3 Stress management
- 3.4 Family counselling
- 3.5 Networking and liaisoning with students, parents, community and NGO's

# Disability Specialization

## MENTAL RETARDATION / INTELLECTUAL DISABILITY

Course code: C 12

### Unit 1: Intellectual Disability - Nature and Needs

- 1.1 Historical Perspective of Intellectual Disability (ID)
- 1.2 Definitions of Intellectual Disability — ICD-10, AAIDD, WHO, PwD Act 1995, RPD bill (Proposed), DSM (Latest)
- 1.3 Etiology Causes and Prevention
- 1.4 Classification — Medical, Psychological, Educational (Recent) and ICF
- 1.5 Screening, Identification, Characteristics and Needs of PwID

### Unit 2: Assessment

- 2.1 Concept, Meaning, Definition and purpose of Educational assessment
- 2.2 Methods of Assessment - Observation, Interview and Rating Scale
- 2.3 Types and Approaches - NRT, CRT, CBA & Teacher Made Tests
- 2.4 Areas of Assessment - Medical, Psychological, Educational, Behavioural & Ecological
- 2.5 Documentation of assessment, Result interpretation & Report writing— Implication of all the above for Inclusion

### Unit 3: Assessment at Pre-School and School levels

## **ASSESSMENT AND IDENTIFICATION OF NEEDS**

- 3.1 Importance of Assessment at Pre- School and School level
- 3.2 Developmental and Adaptive Behaviour Assessment
- 3.3 Assessment Tools at Pre-School level — Upanayan, Aarambh, Portage, MDPS, FACP
- 3.4 Assessment Tools at School Ages — MDPS, BASIC-MR, GLAD, Support Intensity Scale



3.5 Documentation of assessment, Result interpretation & Report writing— Implication of class level assessment & its relation to Inclusion with resource support

**Unit 4: Assessment at Adult and Vocational levels**

- 4.1 Significance of Assessment for Independent living of PwIDs
- 4.2 Assessment for Transition from School to Work
- 4.3 Assessment Tools for Independent Living —BASAL-MR, VAPS
- 4.4 Provisions & Schemes of MoSJE for Vocational Skill Development
- 4.5 Documentation of assessment, Result interpretation & Report writing — Implications of assessment, Outcomes for Community living

**Unit 5: Assessment of Family Needs**

- 5.1 Significance of psychosocial needs and its assessment in family
- 5.2 Assessment of parental needs and its implication in planning IFSP
- 5.3 Assessment of siblings and its implication in planning IFSP
- 5.4 Assessment of extended families needs and its implication in planning IFSP
- 5.5 Assessment of family and community resources for inclusion and strengthening of family, documentation, recording and reporting



# CURRICULUM DESIGNING, ADAPTATION & EVALUATION

Course code: C 13

## Unit 1: Curriculum Designing

- 1.1 Meaning, Definition, Concept and Principles of Curriculum
- 1.2 Types and Approaches of Curriculum Designing
- 1.3 Curriculum Domains - Personal, Social, Academics, Recreational and Community living
- 1.4. Steps in developing curriculum, challenges of developing curriculum for inclusion
- 1.5. Curriculum evaluation, Implementation in inclusion

## Unit 2: Curriculum at Pre-School and Primary School level

- 2.1 Significance of Early Childhood Education and School Readiness
- 2.2 Early Childhood Education Curricular domains — Enhancement of domain in Motor, Personal, Cognitive and Communication areas
- 2.3 Curriculum Domains for Early Childhood Education and Sensory Mechanism
- 2.4 Sensitization of family, involvement in pre-school and primary level
- 2.5 Implication of pre- school and primary levels for Intervention, documentation, record maintenance and report writing

## Unit 3: Curriculum at Secondary, Pre-vocational and Vocational level

- 3.1 Curriculum domains at Secondary level
- 3.2 Curriculum domains at Pre- vocational level
- 3.3 Curriculum domains at Vocational level
- 3.4 Rehabilitation of PwIDs under National Skill development Scheme (NSDS by MSJ&E)



3.5 Implications of placement for inclusion in Community, Documentation, Record Maintenance and Reporting

**Unit 4: Curriculum Adaptations**

- 4.1 Need for Curricular Adaptation, Accommodation and Modification
- 4.2 Adaptation, Accommodation and Modification for Pre —academic Curriculum
- 4.3 Adaptation, Accommodation and Modification for Academics Curriculum
- 4.4 Adaptation, Accommodation and Modification for Co-Curriculum
- 4.5 Adaptation, Accommodation and Modification for School Subjects

**Unit5: Curriculum Evaluation**

- 5.1 Concept, Meaning, Definition of Curriculum Evaluation
- 5.2 Types and Approaches of Evaluation
- 5.3 Emerging trends in evaluation —CCE, Teacher Made Tests, Grading System
- 5.4 Differential evaluation of PwID in inclusive setup
- 5.5 Implications of evaluation for inclusion



## **INTERVENTION AND TEACHING STRATEGIES**

**Course code: C 14**

### **Unit 1: Intervention**

- 1.1 Concept, Significance, Rationale, Scope, Advantages of Early Intervention
- 1.2 Types of Early Intervention
- 1.3 Intervention Techniques
- 1.4 Record Maintenance and Documentation
- 1.5 Implication of Early Intervention for pre-school Inclusion

### **Unit 2: Individualised Education Programme**

- 2.1 Need, Importance and Historical Perspective of IEP
- 2.2 Steps and Components of IEP
- 2.3 Developing, Implementation and Evaluation of IEP for PwID and its associated conditions
- 2.4 IFSP — Planning and writing
- 2.5 Application of IEP for Inclusion

### **Unit 3: Teaching Strategies and TLM**

- 3.1 Stages of Learning
- 3.2 Principles of Teaching

- 3.3 Multi-sensory Approaches — Montessori Methods, VAKT Method, Orton -Gillingham Method, Augmentative and Alternative Communication
- 3.4 Teaching Strategies — Task Analysis, Chaining, Shaping, Modelling, Prompting, Fading and Reinforcement, Role Play, Play Way method
- 3.5 Development and Use of TLM for ID

#### **Unit 4: Intervention for Mal-adaptive Behaviour**

- 4.1 Definition and types of Mal-adaptive behaviour
- 4.2 Identification of Mal-adaptive behaviour
- 4.3 Functional Analysis and Behaviour Modification Techniques, Cognitive Behaviour Techniques (CBT)
- 4.4 Management of Mal-adaptive behaviour at Home and School, Parental Counselling -Individual, Group and Community
- 4.5 Ethical Issues in behaviour management and implications for Inclusion

#### **Unit 5: Therapeutic Intervention**

- 5.1 Occupational Therapy — Definition, Objective, Scope, Modalities and Intervention
- 5.2 Physiotherapy — Definition, Objective, Scope, Modalities and Intervention
- 5.3 Speech Therapy — Definition, Objective, Scope and Types of Speech, Language and Hearing Disorders and Intervention
- 5.4 Yoga and Play therapy — Definition, Objective, Scope and Intervention
- 5.5 Therapeutic intervention: Visual and Performing Arts (eg: Music, Drama, Dance movement, Sports, etc.)

## TECHNOLOGY AND DISABILITY

Course code: C 15

### Unit 1: Technology in Education and Instruction

- 1.1 Educational and Instructional Technology — Meaning, Nature, Scope, Definition, Objectives and Significance
- 1.2 Educational Technology and Instructional Technology — Role and Recent Trends.
- 1.3 Approaches of Educational Technology — Hardware, Software, System approach, Individual & Mass media approach.
- 1.4 Differential Instruction, Universal Design of learning and Individualised Instruction.
- 1.5 Implication of the above for inclusion.

### Unit 2: ICT

- 2.1 ICT — Meaning, Definition, Scope and Significance
- 2.2 Psychological bases for ICT among teachers and learners
- 2.3 Development of ICT — Stages, Requirement and Process
- 2.4 Use of ICT in developing collaborative networks for sharing and learning such as Internet — E-mail, Tele-teaching, Tele-conference
- 2.5 Use of ICT to simplify record keeping, information management in education administration in special and inclusive settings

### Unit 3: Use of Multimedia in Education

- 3.1 Multi Media - Meaning, Nature, Scope, Definition and Approches.

- 3.2 Types of Instructional Aids: Projected & non—projected Aids, Projectors, Radio, Tape Recorder, Television, Films, Computers, whiteboard, Smartboard, e-Flash Cards, Educational Toys
- 3.3 Advantages, Limitations and Challenges of Using Multi media in Education
- 3.4 Recent Trends in Multimedia
- 3.5 Implication of Multimedia in teaching learning.

#### **Unit 4: Technology Based Instructions**

- 4.1 Enhancing Technology Friendly Practices among Teachers.
- 4.2 Computer-Assisted & Computer Managed Instructions, Cybernetics, E- learning, Use of Net Search and Websites
- 4.3 Disability Friendly Technology — Punarjani, and e-learning Framework developed by C-DAC
- 4.4 Developing Technology Integrated Lessons — Individual and Group
- 4.5 Implications of Technology based instruction in Inclusion

#### **Unit 5: Application of Technology**

- 5.1 Application of Technology in Lesson Planning, Worksheet Preparation, Report writing and Evaluation
- 5.2 Application of Technology in Assistive Devices — For example, JAWS, Smartphones, Screen Readers
- 5.3 Application of Technology in Instruction — Individual, small group and large group
- 5.4 Advantages, merits and demerits
- 5.5 Implications for inclusion

## **PSYCHO-SOCIAL AND FAMILY ISSUES**

**Course code: C 16**

### **Unit 1: Family**

- 1.1 Family — Concept, Definition and Characteristics
- 1.2 Types of family
- 1.3 Reaction and Impact of disability on family
- 1.4 Needs of family and counseling
- 1.5 Role of family in rehabilitation of PWID

### **Unit 2: Psycho-Social Issues**

- 2.1 Attitude of family, Community, Peer Group, Teachers, Co-workers
- 2.2 Myths, misconception and social practices
- 2.3 Difference between Intellectual Disability and Mental Illness
- 2.4 Psycho-Social Issues — Exploitation, Delinquency, child labor and child Abuse
- 2.5 Rights and Advocacy

### **Unit 3: Involving Families**

- 3.1 Training and involving families in the rehabilitation process
- 3.2 Parent professional relationship
- 3.3 Formation of Parent Self-Help Group

- 3.4 Parent Associations
- 3.5 Empowering Families

**Unit 4: Adolescent Issues**

- 4.1 Physiological Changes; Implication in Emotional and Social Development
- 4.2 Interpersonal relationship — Parents, Siblings, Extended family, Single child, Peer group
- 4.3 Employment, Sexuality, Marriage, Alternative options, Pre- marital counseling
- 4.4 Ethical Issues
- 4.5 Challenges and Implications

**Unit 5: CBR and CPP (Community People Participation)**

- 5.1 Concept, Definition and Scope of CBR
- 5.2 Models of CBR — Advantages and Disadvantages
- 5.3 Types of Community Resources and their mobilization
- 5.4 Organizing services for PwID in the community
- 5.5 Role of Special Educator, Family, Community and PwID in CBR



# **Disability Specialization**

## **MULTIPLE DISABILITIES**

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## **ASSESSMENT AND IDENTIFICATION OF NEEDS OF PERSONS WITH MULTIPLE DISABILITIES**

**Course code: C 12**

### **Unit 1: Introduction to Multiple Disabilities**

- 1.1 Basic Anatomy- Skeletal, Muscular, Nervous System
- 1.2 Concept of Impairment, Disability and Handicap, ICF
- 1.3 Locomotor Impairment- Hansens' disease, arthritis, kyphosis, scoliosis and rickets
- 1.4 Neurological impairment- encephalitis, meningitis, head injury, Motor Neuron Disease, Mucopoly sacchridosis, Inborn Errors of Metabolism (IEM)
- 1.5 Deafbliness and additional conditions with special reference to syndromes like Congenital Rubella Syndrome, Usher Syndrome and CHARGE syndrome
- 1.5.1 Chromosomal abnormality

### **Unit 2: Identification and Assessment of Persons with Multiple Disabilities**

- 2.1. Introduction to Psychological, educational, behavioral and functional assessments
- 2.2. Functional assessment for programming and teaching. Norm Referenced Tests (NRT), Criterion Referenced Tests (CRT), Curriculum based assessment and Developmental Checklists for assessment and programming of children with Multiple Disabilities (Portage Guide, Upanayan, Carolina curriculum for special needs, Callier Azuza, MDPS, FACP, Basic MR, DST, VSMS, Bhatia, BKT, CPM, SFB)
- 2.3. Interpretation of assessment results with reference to school, home and community settings
- 2.4. Multi-disciplinary approach to assessment. Involvement of various disciplines nature of coordination of multi-disciplinary team referral agencies and linkages, networking for identification of Persons with Multiple disabilities
- 2.5. Role of multi-purpose rehabilitation workers, professionals and special educators in identification of persons with multiple disabilities

**Unit: 3: Physical and functional Assessment**

- 3.1. Sensory assessment of vision, tactile, vestibular and techniques of sensory Stimulation & integration
- 3.2. Motor assessment of fine and gross motor skills. Physiotherapy, Occupational Therapy- their implication and adaptation for classroom management
- 3.3. Assessment of orientation and mobility skills, Positioning, Lifting, Carrying, Transfer of persons. Developmental Assessment- Gross, Motor and Functional Measurement Scale (GMFM)
- 3.4. Assessment and management of daily living skills in feeding, dressing & undressing, toileting, bathing & grooming and meal time activities
- 3.5. Role of ICT in assessment and use of Assistive devices in assessment

**Unit: 4: Developmental and Behavioural Aspects in Relation to Multiple Disabilities**

- 4.1. Developmental stages- Physical, social, cognitive, language and emotional
- 4.2. Developmental delays and their implications in the life cycle
- 4.3. Adaptive deficits- self-help areas, emotional, social, cognate and language areas
- 4.4. Maladaptive behaviours- functional analysis
- 4.5. Ethical issues in management strategies of maladaptive behaviour in-home and Classroom settings

**Unit 5: Hearing, Speech, Language and Communication Aspects.**

- 5.1 Speech, Language and Communication definition and assessment
- 5.2 Structure and functions of speech mechanism
- 5.3 Receptive and expressive language for persons with Multiple disabilities
- 5.4 Hearing and Speech disorders- Classroom management. Home training and role of Parents
- 5.4. An introduction to augmentative and alternate communication (Pragmatic / functional communication in classroom and home activities to enhance communicative skills of children with Multiple Disabilities)

## **CURRICULUM DESIGNING, ADAPTATION AND EVALUATION**

**Course code: C 13**

### **Unit 1: Introduction to Curriculum Development**

- 1.1 Aims, concepts, principles of curriculum development with reference to persons with disabilities
- 1.2 Types and approaches of curriculum development
- 1.3 Specific approaches of curriculum development for persons with disabilities (Unit, Ecological and Social learning)
- 1.4 Individualized Educational Programme (IEP), Individualized Family Support Plan (IFSP), Individualized Transition Plan (ITP), Individualized vocational Education Plan (IVEP)
- 1.5 Lesson plan. Group teaching and Peer tutoring

### **Unit 2: Curriculum Development at Various Stages**

- 2.1 Curriculum content for Early intervention group and Pre-school level
- 2.2 Curriculum content for Primary level
- 2.3 Curriculum content for Secondary level
- 2.4 Curriculum content for Pre-vocational level
- 2.5 Curriculum content for Transition, Vocational skills and Life skills training

### **Unit 3: Curricular and Co-curricular Material Adaptation**

- 3.1 Curriculum content material adaptations for persons with severe and profound disability
- 3.2 Curriculum content and materials adaptations for sensory impaired
- 3.3 Curriculum content and materials adaptations for cerebral palsy and other locomotor disabilities
- 3.4 Curriculum content material adaptation for children with ASD
- 3.5 Curriculum content and material adaptation for children identified as developmentally delayed.

#### **Unit 4: Classroom Management**

- 4.1 Drawing time table of daily plan, weekly plan, monthly plan quarterly half yearly and annual plan
- 4.2 Methods of teaching
- 4.3 Teaching strategies and techniques
- 4.4 Approaches of teaching (specific approaches of teaching children with ASD, CP& Multiple disabilities)
- 4.5 Class room arrangements with reference to barrier free and access
- 4.5.1 Class room behaviour management

#### **Unit 5: Evaluation**

- 5.1 Definition and purpose of evaluation
- 5.2 Types of evaluation (qualitative and quantitative evaluation, formative and summative evaluation)
- 5.3 Process of evaluation (content, method, material and the outcome)
- 5.4 Strategies for evaluating the children with multiple disabilities
- 5.5 Monitoring, preparing, and recording student's progress



# INTERVENTION AND TEACHING STRATEGIES

**Course code: C 14**

## **Unit 1: Early Intervention**

- 1.1 Concepts, principles of early intervention and importance of brain plasticity
- 1.2 Teaching self help skills, feeding and oro-motor skills
- 1.3 Multimodal approaches to facilitate development of Language, communication and speech, Cognition, social emotional skills, learning to play.
- 1.4 Teaching Pre-requisite skills for reading, writing, arithmetics and other related skills.
- 1.5 Individualized Family Support Plan (IFSP), Individualized Family Support Plan (IFSP)

## **Unit 2: Therapeutic Intervention Strategies**

- 2.1 Behaviour modification
- 2.2 NDT, SIT, Hydrotherapy
- 2.3 AAC - Total Communication
- 2.4 Sports and Games (Special Olympics, paralympics& abhylympics)
- 2.5 Visual and Performance arts (dance, music, drama and yoga theatre art)

## **Unit 3: Teaching Methods, Techniques and Strategies**

- 3.1 Stages of learning: Acquisition, Maintenance, Fluency and Generalization
- 3.2 Principles of teaching: Concrete-abstract, Known to unknown, Simple to complex and Whole to part
- 3.3 Teaching Strategies, Task analysis, Prompting, Fading, Chaining, Shaping and Modelling
- 3.4 Teaching approaches: Multisensory, Montessori, Project method, Play-Way
- 3.5 Reinforcement: Types, Schedule and Principles, Differential Reinforcements Token Economy System

#### **Unit 4: Universal Design in Learning**

- 4.1 PECS
- 4.2 Discrete Trail Training
- 4.3 Themes, Mind mapping, Calendar system, Probing Teaching Strategies and Techniques
- 4.4 TEACCH, VBA & AT
- 4.5 Floor time and Miller method.
- 4.5 Class room behaviour management

#### **Unit 5: Teaching Methods, Approaches and Strategies for Sensory Impairment**

- 5.1 Hand under hand, Hand over hand
- 5.2 Teaching Sign Language
- 5.3 Teaching Braille
- 5.4 Teaching Computers
- 5.5 O&M



# TECHNOLOGY AND DISABILITIES

**Course code: C 15**

## **Unit 1: Introduction to Assistive Technology (AT)**

- 1.1 Concept, Definition and the Importance of AT
- 1.2 History of Assistive Technology
- 1.3 Lifecycle approaches of using Assistive Technology
- 1.4 Levels of Assistive Technology and the difference between Assistive Technology and Adaptive Technology
- 1.5 Universal design for learning

## **Unit 2: Assistive Technology for Communication, Academic Learning and Assistive Living**

- 2.1 Problems exhibited by the students with disabilities in communication, learning and in independent living
- 2.2 Technology that supports language and communication
- 2.3 Technology tools that strengthens academic learning
- 2.4 Technology that supports assistive /independent living and livelihood skills
- 2.5 Technology that supports home management, Issues of procuring & using assistive technology in rural / urban settings

## **Unit 3: Assistive Technology to Support Universal Design for Learning (UDL)**

- 3.1 UDL: Concept, Meaning Definitions and Aim
- 3.2 UDL: principles
- 3.3 UDL: goals
- 3.4 UDL: applications in the class room
- 3.5 UDL: application on curriculum and material preparations

#### **Unit 4: Assistive Technology to Enhance Social Skills, Orientation and Mobility**

- 4.1 Concept, Meaning and Definitions of Social Communication, Orientation and Mobility
- 4.2 Prerequisites, Importance, Functions, Types and/or Modes of Communications
- 4.3 Assistive Listening Devices, Assistive Mobility Devices
- 4.4 Technology in Sports, Dance, Drama and Music
- 4.5 AAC, O&M (maintenance of Listening aids, Visual aids, Mobility cane, use of Wheel chair, Motorized wheel chair, Crutches, Calipers, Artificial limbs, Tri-cycles, Cars and Other mobility equipments)

#### **Unit 5: Access to Computer**

- 5.1 Orientation to Computers, parts of computers, Programmes in computer
- 5.2 Development and dissemination of Audio materials and resources
- 5.3 Application of computer in teaching (digital instructions, CAI)
- 5.3 Application of technology in the class room (smart board, Portable reading devices, Magnifiers, CCTV voice output devices)
- 5.4 Alternate input devices (Sensors, Joy sticks, Switches, Mouse, Key board, Head pointers, Touch screen, Eye gazer, Optical recognition software, Tactile diagrams, Digital Accessible Information Systems (DAISY))
- 5.5 Alternate out put options (Screen magnification, Screen reader, Refreshable Braille display, Braille embosser, Mobile screen reader tools)





# PSYCHOSOCIAL AND FAMILY ISSUES

**Course code: C 16**

## **Unit 1: Attitudes and Stress**

- 1.1 Attitudes of self (PWD), family & Community
- 1.2 Attitude change and basic theories (cognitive dissonance theory)
- 1.3 Stress, definition & theories
- 1.4 Coping with stress - Psycho social methods
- 1.5 Assessment of emotional reactions (scale name)

## **Unit 2: Role of family**

- 2.1 Family definitions, types, dynamics
- 2.2 Roles and responsibilities, communication systems
- 2.3 Family empowerment strategies
- 2.4 Family pathology-disability
- 2.5 Family as support system

## **Unit 3: Working with Family having Children with Disability**

- 3.1 Disability -- Poverty & Poverty alleviation programme
- 3.2 Home-based training programme and Parent training programme
- 3.3 Local Level Committee/ Group Homes/ Respite Care
- 3.4 Parent guidance and counseling service
- 3.5 Parents association/ Support group- Objectives and Mission

## **Unit 4: Community Resource Mobilization**

- 4.1 Assessment of Community needs & CBR Matrix
- 4.2 Formation of DPO/ Leadership training, Self Help Group/ Political participation
- 4.3 Resource Mobilization-Family resource and community resource
- 4.4 Networking Multi sectorial linkage - National and International
- 4.5 CSR/ Public Private Partnership

## **Unit 5: Access**

- 5.1 Barrier free Environment & Universal design
- 5.2 Ergonomics -Work station, public places
- 5.3 Educational and architectural adaptation
- 5.4 Independent/ Assistive Living
- 5.5 Information and Communication - Website/ Open source

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**Disability Specialization**

**VISUAL IMPAIRMENT**

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# **IDENTIFICATION OF CHILDREN WITH VISUAL IMPAIRMENT AND ASSESSMENT OF NEEDS**

**Course Code: C 12**

## **Unit 1: Anatomy and Physiology of Human Eye**

- 1.1 Structure and Function of human eye
- 1.2 Normal vision development and process of seeing
- 1.3 Principles of refraction and refractive errors
- 1.4 Concept and definitions of blindness and low vision
- 1.5 Concept of visual acuity, visual field, depth perception and contrast sensitivity

## **Unit 2: Types of Visual Impairment and Common Eye Disorders**

- 2.1 Loss of Visual acuity
- 2.2 Loss of Visual field
- 2.3 Colour vision defect and loss of contrast sensitivity
- 2.4 Refractive errors, Vitamin-A deficiency, Cataract, Glaucoma, Corneal ulcer, trachoma, Albinism, Retinal detachment, Retinitis pigmentosa, Retinopathy of prematurity, Cortical Visual Impairment, Optic Atrophy, Nystagmus, Amblyopia, and Macular degeneration

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2.5 Educational implications of different Eye disorders

**Unit 3: Implications of Visual Impairment and Needs of Visually Impaired**

- 3.1 Psychosocial implications of visual impairment
- 3.2 Factors affecting implications of visual impairment: Age of onset, degree of vision, type of vision loss, prognosis, and socio economic status of the family
- 3.3 Effect of visual impairment on growth and development: Physical, Motor, Language, Socio-emotional, and Cognitive development
- 3.4 Educational needs of the visually impaired and need for expanded core curriculum
- 3.5 Implications of low vision and needs of children with low vision

**Unit 4: Identification and Assessment of Visual Impairment**

- 4.1 Interpretation of clinical assessment of vision
- 4.2 Functional assessment of vision: Concept, need and methods
- 4.3 Tools of functional assessment of vision and skills: Functional skills inventory for the blind (FSIB), Low Vision Assessment by Jill Keeffe, Lea tests, and Portfolio assessment
- 4.4 Tools for psychological assessment of the visually impaired: Vithoba Paknikar Performance Test, A short Scale IQ measure for the visually impaired based on WISC-R, Adapted EPQ, Adapted Blind Learning Aptitude Test, Concept development for blind children, Reading Preference Test, Cornell Medical Index for Visually Handicapped Children
- 4.5 Report writing

**Unit 5: Assessment of Learning Needs of Children with VIMD**

- 5.1 Concept and definition of VIMD
- 5.2 Etiology of VIMD
- 5.3 Impact of VIMD on learning and development
- 5.4 Screening, identification, and assessment of Visually Impaired children with associated disabilities
- 5.5 Multidisciplinary assessment of Visually Impaired children with Associated Disabilities

# **CURRICULUM, ADAPTATION AND STRATEGIES FOR TEACHING EXPANDED CURRICULUM**

**Course Code: C 13**

## **Unit 1: Concept and Types of Curriculum**

- 1.1 Concept, Meaning and Need for Curriculum
- 1.2 Curricular Approaches in Special Education - Developmental, Functional, Eclectic and Universal design for learning Approach
- 1.3 Types of Curriculum - need based, knowledge based, activity based, skill based and hidden curriculum
- 1.4 Curriculum Planning, Implementation and Evaluation; Role of Special teachers of the Visually Impaired
- 1.5 Core Curriculum and Expanded Core Curriculum- Meaning, Need and Components

## **Unit 2: Teaching Functional Academics Skills**

- 2.1 Learning media assessment
- 2.2 Braille reading readiness
- 2.3 Techniques of teaching Braille
- 2.4 Techniques of Teaching print to children with low vision
- 2.5 Braille aids and devices, optical devices for print reading and writing

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### **Unit 3: Teaching of Independent Living Skills**

- 3.1 Independent living skills - Meaning, Importance, Components
- 3.2 Orientation and Mobility - need and importance, techniques of teaching mobility, sighted guide and pre-cane, cane techniques and mobility aids
- 3.3 Daily living skills - assessment of needs and techniques of teaching age appropriate daily living skills
- 3.4 Sensory efficiency - importance and procedures for training auditory, tactile, olfactory, gustatory, kinaesthetic senses and residual vision
- 3.5 Techniques of teaching social interaction skills, leisure and recreation skills and self-determination

### **Unit 4: Curricular Adaptation**

- 4.1 Curricular adaptation - Need, Importance and Process
- 4.2 Reasonable accommodation - Need and Planning
- 4.3 Planning of lessons for teaching Expanded Core Curriculum - Individualized Education Program writing
- 4.4 Pedagogical Strategic - Cooperative learning, Peer tutoring, reflective teaching, multisensory teaching
- 4.5 Preparation of Teaching Learning Material for ECC - Reading Readiness kit, Flash Cards, Sensory Kits, and Mobility Maps

### **Unit 5: Curricular Activities**

- 5.1 Curricular activities - Meaning and Need for Adaptation.
- 5.2 Adaptation of Physical education activities and Yoga
- 5.3 Adaptation of Games and Sports - both Indoor and Outdoor
- 5.4 Creative Arts for the children with visual impairment
- 5.5 Agencies/Organisations promoting - Sports, Culture and Recreation activities for the Visually Impaired in India - Indian Blind Sports Association, Chess Federation of India, Paralympic Committee of India, Abilympics, World Blind Cricket

## INTERVENTION AND TEACHING STRATEGIES

**Course Code: C 14**

### **Unit 1: Theoretical Perspectives**

- 1.1 Difference among Methods, Approaches and Strategies
- 1.2 Intervention - Concept, Scope and Importance
- 1.3 Intervention for lately blinded students - Role of Special teachers/educators
- 1.4 Mediated teaching-learning - Concept, Need and Procedure
- 1.5 Enriched teaching for Concept development: Converting visual concepts into accessible experiences

### **Unit 2: Mathematics**

- 2.1 Coping with Mathematics phobias
- 2.2 Conceptualization of Mathematical ideas - Processes and Challenges for Children with Visual Impairment
- 2.3 Preparation and Use of tactile materials
- 2.4 Mental arithmetic abilities - Concept, Importance and Application
- 2.5 Evaluation procedures with special reference to the Needs of Children with Visual Impairment

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### **Unit 3: Science**

- 3.1 Providing first-hand experience in the class and the school environment
- 3.2 Inclusive/collaborative learning for laboratory work
- 3.3 Science Teaching Learning Materials and Equipment: i) Preparation and use of TLM, ii) Locating and procuring Science equipment
- 3.4 Problem solving and Learning by doing approach for Visually Impaired students
- 3.5 Evaluation procedure with particular reference to Practicals and Adaptations in Examination questions

### **Unit 4: Social Science**

- 4.1 Techniques of preparation and presentation of adapted Tactile maps, Diagrams, and Globe
- 4.2 Procuring, adapting and use of different types of models
- 4.3 Organizing field trips
- 4.4 Teaching Skills: Dramatization, Narration, Explanation, Story-telling, and Role play
- 4.5 Evaluation of concepts and skills in social science with particular reference to Geography

### **Unit 5: Teaching of Children with Low Vision**

- 5.1 Visual Stimulation: Concept and Procedure
- 5.2 Selection of an appropriate medium of reading and writing
- 5.3 Techniques and procedures for developing reading and writing skills
- 5.4 Orientation and Mobility for low vision children
- 5.5 Classroom management - Seating arrangement, adjustable furniture, illumination, non-reflecting surfaces and colour contrast

# TECHNOLOGY AND EDUCATION OF THE VISUALLY IMPAIRED

**Course Code: C 15**

## **Unit 1: Introducing Educational and Information Communication Technology**

- 1.1 Educational Technology-Concept, Importance, and Scope
- 1.2 Difference between Educational Technology and Technology in Education
- 1.3 Special Significance and Goals of Technology for the Education of children with Visual Impairment
- 1.4 Information and Communication Technology (ICT) - Concept and Special Significance for teaching-learning of the visually impaired
- 1.5 ICT and the UN Convention on the Rights of Persons with Disabilities.



## **Unit 2: Adaptive Technologies**

- 2.1 Concept and Purposes
- 2.2 Basic Considerations--Access, Affordability, and Availability
- 2.3 Addressing User's Perspectives in Developing Adaptive Technologies
- 2.4 Roles of IIT's and the Scientific Community;
- 2.5 Universal/Inclusive Design - Concept, Advantages, and Limitations.

## **Unit 3: Access to Print for the Visually Impaired**

- 3.1 Screen Readers with Special Reference to Indian Languages; Magnifying Software, and Open Source Software.
- 3.2 Braille Notetakers and Stand-alone Reading Machines
- 3.3 Braille Translation Software with Particular reference to Indian Languages and Braille Embossers
- 3.4 On-Line Libraries and Bookshare
- 3.5 Daisy Books, Recordings, and Smart Phones.

## **Unit 4: Assistive Technologies for the Visually Impaired with Reference to School Subjects and Low Vision**

- 4.1 Mathematics: Taylor Frame, Abacus, Geo Board, Algebra and Maths Types, Measuring Tapes, Scales, and Soft-wares for teaching Maths.
- 4.2 Science: Thermometers, Colour Probes, Scientific and Maths Talking Calculators, Light Probes, and Weighing scales and Soft-wares for teaching Science.
- 4.3 Social Science: Tactile/Embossed Maps, Charts, Diagrams, Models of Different Types, Auditory Maps, Talking compass, and GPS
- 4.4 Low vision devices: Optical, Non-Optical and Projective
- 4.5 Thermoform and Swell Paper technology and Softwares for developing tactile diagrams

## **Unit 5: Computer-Aided Learning**

- 5.1 Social Media
- 5.2 Creation of Blogs
- 5.3 Tele-Conferencing
- 5.4 Distance Learning and ICT
- 5.5 e-Classroom: Concept and Adaptations for Children with Visual Impairment

## PSYCHO SOCIAL AND FAMILY ISSUES

**Course Code: C 16**

### **Unit 1: Family of a Child with Visual Impairment**

- 1.1 Birth of a child with visual impairment and its effect on parents and family dynamics
- 1.2 Parenting styles: Overprotective, Authoritative, Authoritarian and Neglecting
- 1.3 Stereotypic attitudes related to visual impairment and attitude modification
- 1.4 Role of family in Early stimulation, Concept development and Early intervention
- 1.5 Role of siblings and extended family

### **Unit 2: Parental Issues and Concerns**

- 2.1 Choosing an educational setting
- 2.2 Gender and disability
- 2.3 Transition to adulthood: sexuality, marriage, and employment
- 2.4 Parent support groups
- 2.5 Attitude of professionals in involving parents in IEP and IFSP

### **Unit 3: Rehabilitation of Children with Visual Impairment**

- 3.1 Concept of habilitation and rehabilitation
- 3.2 Community Based Rehabilitation (CBR) and Community Participatory Rehabilitation (CPR)
- 3.3 Legal provisions, concessions and advocacy

- 3.4 Vocational rehabilitation: need and challenges
- 3.5 Issues and challenges in rural settings

**Unit 4: Meeting the Challenges of Children with Visual Impairment**

- 4.1 Enhancing prosocial behaviour
- 4.2 Stress and coping strategies
- 4.3 Recreation and leisure time management
- 4.4 Challenges of adventitious visual impairment
- 4.5 Soft skills and social skills training



**AREA D**  
**ENHANCEMENT OF PROFESSIONAL  
CAPACITIES (EPC)**

(Wherever applicable specific reference to disability will be focused)

D17	Reading and Reflecting on Texts
D18	Drama and Art in Education
D19	Basic Research & Basic Statistic

**Adda247**

## READING AND REFLECTING ON TEXTS

**Course code: D 17**

### **Unit 1: Reflections on Literacy**

- 1.1 Literacy and Current University Graduates: Status and Concerns
- 1.2 Role of Literacy in Education, Career and Social Life
- 1.3 Literacy, Thinking and Self Esteem
- 1.4 Literacy of Second Language/ English: Need and Strategies
- 1.5 Basic Braille Literacy

### **Unit 2: Reflections on Reading Comprehension**

- 2.1 Practicing Responses to Text: Personal, Creative and Critical
- 2.2 Meta Cognitive Awareness of Reading Processes and Strategies Applied for Meaning Making
- 2.3 Developing Good Reading Skills and Habits in Primary Level Students: Activities and Strategies
- 2.4 Basic Understanding of Reading Comprehension of Children with Disabilities

### **Unit 3: Skill Development in Responding to Text**

- 3.1 Indicators of Text Comprehension: Retelling, Summarizing, Answering, Predicting, Commenting and Discussing

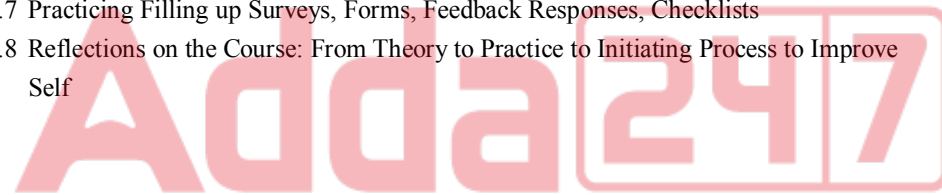
- 3.2 Practicing Responding to Text (Using The Indicators) for Recreational Reading Material (Narrations) and School Textbooks (Description)
- 3.3 Practicing Responding to Text (Using The Indicators) for Reports, Policy Documents and News (Expositions) and Editorial, Academic Articles, Advertisement Copy, Resume (Argumentation)
- 3.4 Practicing Web Search, Rapid Reading and Comprehensive Reading

#### **Unit 4: Reflecting Upon Writing as a Process and Product**

- 4.1 Understanding writing as a Process: Content (Intent, Audience and Organization)
- 4.2 Understanding writing as a Process: Language (Grammar, Vocabulary, Spelling)
- 4.3 Understanding writing as a Process: Surface Mechanics (Handwriting, Neatness, Alignment and Spacing)
- 4.4 Practicing Self Editing and Peer Editing of Sample Texts
- 4.5 Practicing Evaluating Students Writing Using Parameters: Productivity, Correctness, Complexity, Text Organization and Literary Richness

#### **Unit 5: Practicing Independent Writing**

- 5.4 practicing Writing: Picture Description/ Expansion of Ideas/ Essays/ Stories
- 5.5 Practicing Daily Leaving Writing: Applications/ Agenda - Minutes/ Note Taking
- 5.6 Practicing Converting Written Information into Graphical Representation
- 5.7 Practicing Filling up Surveys, Forms, Feedback Responses, Checklists
- 5.8 Reflections on the Course: From Theory to Practice to Initiating Process to Improve Self





## PERFORMING AND VISUAL ARTS

**Course code: D 18**

### **Unit 1: Introduction to art Education**

- 1.1 Art and art education: Meaning, scope and difference
- 1.2 Artistic expression: Meaning and strategies to facilitate
- 1.3 Art therapy: Concept and application to students with and without disabilities
- 1.4 Linking Art Education with Multiple Intelligences
- 1.5 Understanding emerging expression of art by students

### **Unit 2: Performing Arts: Dance and Music**

- 2.1 Range of art activities related to dance and music
- 2.2 Experiencing, responding and appreciating dance and music
- 2.3 Exposure to selective basic skills required for dance and music
- 2.4 Dance and Music: Facilitating interest among students: planning and implementing activities
- 2.5 Enhancing learning through dance and music for children with and without special needs:  
Strategies and Adaptations



### **Unit 3: Performing Arts: Drama**

- 1.1 Range of art activities in drama
- 3.1 Experiencing, responding and appreciating drama
- 3.2 Exposure to selective basic skills required for drama
- 3.3 Drama: Facilitating interest among students: planning and implementing activities
- 3.4 Enhancing learning through drama for children with and without special needs: strategies and adaptations

### **Unit 4: Visual Arts**

- 4.1 Range of art activities in visual arts
- 4.2 Experiencing, responding and appreciating visual art
- 4.3 Exposure to selective basic skills in visual art
- 4.4 Art education: Facilitating interest among students: planning and implementing activities
- 4.5 Enhancing learning through visual art for children with and without special needs: strategies and adaptations

### **Unit 5: Media and Electronic Arts**

- 5.1 Range of art activities in media and electronic art forms
- 5.2 Experiencing, responding and appreciating media and electronic arts
- 5.3 Exposure to selective basic skills in media and electronic arts
- 5.4 Media and electronic arts: Facilitating interest among students: planning and implementing activities
- 5.5 Enhancing learning through media and electronic art for children with and without special needs: strategies and adaptations

# BASIC RESEARCH AND STATISTICS

**Course code: D 19**

## **Unit 1: Introduction to Research**

- 1.1 Scientific Method
- 1.2 Research: Concept and Definition
- 1.3 Application of Scientific Method In Research
- 1.4 Purpose of Research
- 1.5 Research in Education and Special Education

## **Unit 2: Types and Process of Research**

- 2.1 Types of Research
  - Basic/Fundamental
  - Applied
  - Action
- 2.2 Process of Research
  - Selection of Problem
  - Formulation of Hypothesis
  - Collection of Data
  - Analysis of Data & Conclusion
- 2.3 Tools of Research: Tests, Questionnaire, Checklist and Rating Scale
- 2.4 Action Research in Teaching Learning Environment
- 2.5 Professional Competencies for Research

## **Unit 3: Measurement and Analysis of Data**

- 3.1 Scale for measurement: Nominal, Ordinal, Interval and Ratio
- 3.2 Organization of data: Array, Grouped distribution
- 3.3 Measures of central tendency and Dispersion: Mean, Median and Mode, Standard deviation and Quartile deviation
- 3.4 Correlation: Product Moment and Rank Order Correlation
- 3.5 Graphic representation of data