

## AFCAT 1 2024 Previous Year Paper (Memory Based)

**Q1.** Consider the following statements regarding the Operation Zindagi:

1. The goal of the rescue effort was to free laborers who were stranded in a tunnel that was still under construction at Silkyara.
2. The location of the Silkyara tunnel is in Uttarakhand.

Which of the given statements is/are correct?

- (a) 1 Only
- (b) 2 Only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**Q2.** Which section of the Indian Constitution contains the anti-defection law?

- (a) Seventh Schedule
- (b) Eighth Schedule
- (c) Ninth Schedule
- (d) Tenth Schedule

**Q3.** What are the lines that are created on a map to join locations where an earthquake is causing equal shaking strength called?

- (a) Seismic Markings
- (b) Richter Lines
- (c) Iseismic Lines
- (d) Tremor Connections

**Q4.** What unit of measurement is used to calculate the separation between heavenly bodies?

- (a) Metres
- (b) Miles
- (c) Kilometres
- (d) Light years

**Q5.** What is the name of the lunar landing site of the Chandrayaan lander?

- (a) Shiv Shakti Point
- (b) Ganga Point
- (c) Sadbhavana Point
- (d) Vikram Site

**Q6.** Which nation is the home of the C295 Airbus Company?

- (a) France
- (b) Germany
- (c) Spain
- (d) United Kingdom

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**Q7.** While incarcerated in \_\_\_\_\_, Pandit Nehru penned the book Discovery of India.

- (a) Ahmednagar
- (b) Ahmedabad
- (c) Allahabad
- (d) Yerwada

**Q8.** Where in India does the Bhagirathi River meet the Alaknanda River?

- (a) Devprayag
- (b) Dehradun
- (c) Prayagraj
- (d) Champawat

**Q9.** Which of the following countries participates in the joint military exercise known as "Vajra Prahar" with India?

- (a) Australia
- (b) Saudi Arabia
- (c) USA
- (d) France

**Q10.** In August 2023, who was named Chairman and CEO of the Railway Board?

- (a) Anil Kumar Lahoti
- (b) Jaya Varma Sinha
- (c) Vinod Kumar Yadav
- (d) VK Tripath

**Q11.** Of the following, who does not belong to SAARC?

- (a) Bhutan
- (b) Maldives
- (c) Indonesia
- (d) Afghanistan

**Q12.** Which sport is connected to the Japan Challenge Tour?

- (a) Tennis
- (b) Golf
- (c) Soccer
- (d) Swimming

**Q13.** Ropar was situated on the banks of which river?

- (a) Chenab
- (b) Sutlej
- (c) Indus
- (d) Ravi

**Q14.** A ball bounces when it falls to the ground. This is in line with

- (a) Newton's first law of motion

- (b) Newton's second law of motion
- (c) Newton's third law of motion
- (d) The ball is elastic

**Q15.** In which of the cities of Gujarat the New Greenfield Airport will be developed?

- (a) Surat
- (b) Dholera
- (c) Ahmedabad
- (d) Jamnagar

**Q16.** Who was the founder of Tasvir Khana?

- (a) Akbar
- (b) Humayun
- (c) Jahangir
- (d) Shahjahan

**Q17.** Which of the following Indian Navy Kalvari class submarines was put into service on January 23, 2023?

- (a) INS Vagir
- (b) INS Vela
- (c) INS Vagsheer
- (d) INS Khanderi

**Q18.** Which of the following was the Indian Air Force's first aircraft to be inducted in 1932?

- (a) Havilland Tiger Moth
- (b) Westland Wapiti
- (c) Supermarine spitfire
- (d) Fairchild Packet

**Q19.** Which of the following describes guided anti-tank missiles that are produced domestically?

- (a) Amogha
- (b) Viraat
- (c) Jasmine
- (d) Dhruvastra

**Q20.** Of the following, who made the discovery of X-ray?

- (a) Wilhelm Roentgen
- (b) Michael Faraday
- (c) John Napier
- (d) James Chadwick

**Q21.** In 2023, India hosted the G20 summit. What was the G20 2023 theme?

- (a) It's Time for Wetlands Restoration
- (b) One Earth One Family One Future
- (c) Today's Era Is Not an Era of War
- (d) Uniting the World against Terrorism

**Q22.** Where in India is the headquarters of the Indian Space Research Organization located?

- (a) New Delhi
- (b) Mumbai
- (c) Bengaluru
- (d) Kolkata

**Q23.** The founder of the Brahmo Samaj was:

- (a) Keshab Chandra Sen
- (b) Raja Rammohan Roy
- (c) Devendranath Tagore
- (d) Dayananda Saraswathi

**Q24.** Which sport is the term "fine leg," "gully," and "midwicket" linked with?

- (a) Cricket
- (b) Football
- (c) Hockey
- (d) Volleyball

**Q25.** Which of the following countries has the longest railway station platform in the world?

- (a) India
- (b) USA
- (c) Japan
- (d) China

**Q26.** Select the most appropriate word opposite to the given word:

Curious

- (a) unconcerned
- (b) impassionate
- (c) complex
- (d) suspicion

**Q27.** Select the most appropriate 'one word ' for the expressions given below.

That which cannot be corrected

- (a) Tremor
- (b) Ineligible
- (c) Incurrigible
- (d) Intangible

**Q28.** Choose the most appropriate option to fill in the blank.

Radhika decided to \_\_\_\_\_ with me.

- (a) Move in
- (b) Move at
- (c) Move from
- (d) Move to

**Q29.** Select the most appropriate 'one word ' for the expressions given below.

Done, occurring, or active at night.

- (a) Nocturnal
- (b) Cothurn
- (c) Adjournal
- (d) Diuturnal

**Q30.** Select the word that is closest in meaning (SYNONYM) to the word given below.

Vandalize

- (a) Desecrate
- (b) Ascertain
- (c) Commemorate
- (d) Venerate

**Q31.** Identify the segment in the sentence which contains a grammatical error.

Prior to this assignment, he work as an officer in the accounts department.

- (a) he work
- (b) as an officer
- (c) Prior to this assignment
- (d) in the accounts department

**Q32.** Select the most appropriate 'one word ' for the expression given below.

Self-pityingly or tearfully sentimental.

- (a) Cisplatin
- (b) Maudlin
- (c) Codlin
- (d) Myelin

**Q33.** Select the most appropriate meaning of the given idiom.

"Haste makes waste"

- (a) Should, ought to, be advisable to
- (b) Angry and overcome by emotions
- (c) Doing things quickly result in a poor ending
- (d) Intelligent people think like each other

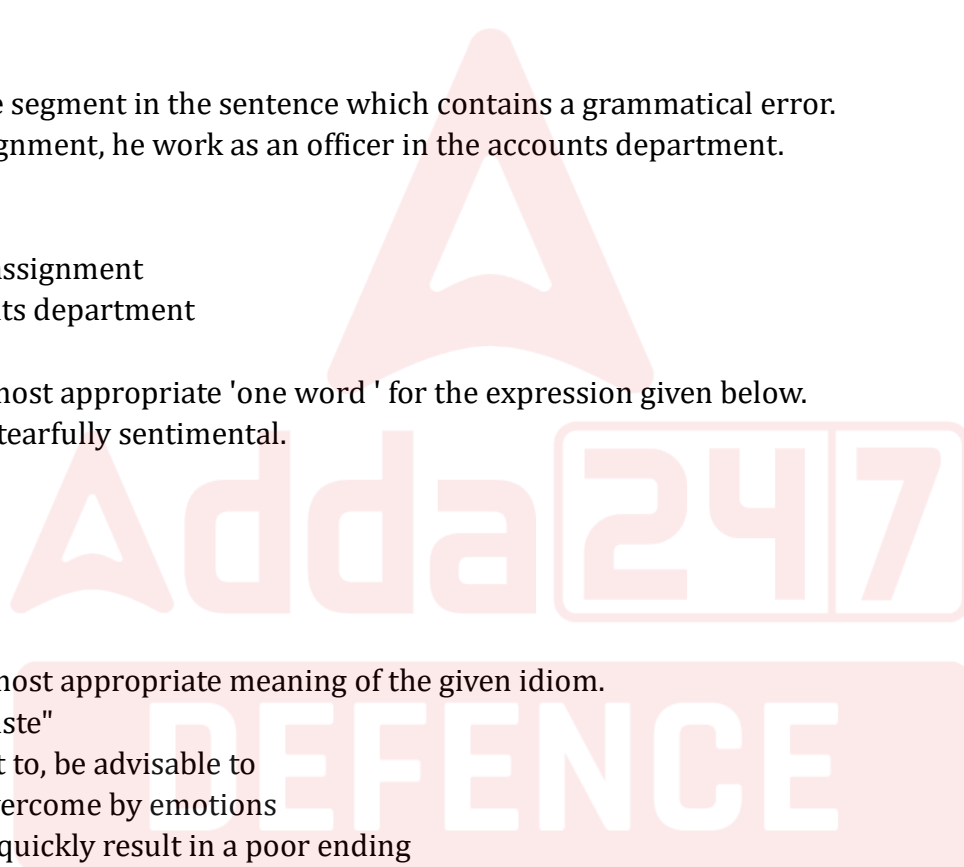
**Q34.** Select the word that is opposite in meaning (ANTONYM) to the word given below.

Avert

- (a) Thwart
- (b) Assist
- (c) Elude
- (d) Compensate

**Q35.** Select the most appropriate antonym of the given word.

Dilatory



- (a) Unhurried
- (b) Postponing
- (c) Prompt
- (d) Idle

**Q36.** Four words are given, out of which only one word is spelt correctly. Choose the word with the correct spelling.

- (a) Fillicious
- (b) Fallacious
- (c) Fallicious
- (d) Fillacious

**Q37.** Given below are four parts of a sentence which are jumbled. Pick the option that gives their correct order to make a grammatically correct, meaningful sentence.

- A. that they got from the grapevine
- B. the employees of the MNC were on tenterhooks all day
- C. and their nervousness could be seen on their faces
- D. having heard rumours of mass transfers

- (a) BCDA
- (b) DBAC
- (c) DABC
- (d) BDCA

**Q38.** Given below are four parts of a sentence which are jumbled. Pick the option that gives their correct order to make a grammatically correct, meaningful sentence.

- A. students were expected
- B. studied in earlier classes
- C. having reached higher classes
- D. to know the formulas and principles

- (a) ACDB
- (b) CDAB
- (c) ADBC
- (d) CADB

**Q39.** Out of all the alternatives given, select the word which closely fits the given idiom/phrase.

Barking up the wrong tree

- (a) To blame someone unfairly for a problem.
- (b) To be mistaken, to be looking for solutions in the wrong place.
- (c) To ignore someone.
- (d) Being treated the same unpleasant way you have treated others.

**Q40.** Select the most appropriate option to fill in the blank.

The problem, at least for those holidaying in Gibraltar, is that neither of these hotels \_\_\_\_\_ a beach.

- (a) has
- (b) have
- (c) had
- (d) having

**Q41.** A sentence has been given with a blank to be filled with an appropriate word. Choose the correct alternative.

Your brother is \_\_\_\_\_ intelligent than your father.

- (a) most
- (b) more
- (c) many
- (d) much

**Q42.** Which of the following is correctly spelt?

- (a) Riceprocity
- (b) Reciprosity
- (c) Reciprocity
- (d) Reciprrosity

**Q43.** Select the word which means the same as the group of words given.

The ability to make good judgements and take quick decisions.

- (a) Acumen
- (b) Ineptness
- (c) Intuition
- (d) Perception

**Q44.** Identify the segment of the sentence which contains a grammatical error.

Shall her flight get cancelled, your mother says she will send you a message.

- (a) she will send you a message.
- (b) your mother says
- (c) Shall her flight
- (d) get cancelled,

**Q45.** In the following question, some parts of the sentence may have errors. Select the option that has the error. If the sentence has no error then select 'No Error'.

In the ancient world, theories of the origin of Earth and the objects see in the sky were certainly much less constrained.

- (a) of Earth and the objects see in the sky
- (b) were certainly much less constrained.
- (c) No Error
- (d) In the ancient world, theories of the origin

**Directions (46-48):** In the following passage, some words have been deleted. Read the passage carefully and select the most appropriate option to fill in each blank.

Relate comic things (1) \_\_\_\_\_ pompous fashion. Irregularity, in other words the unexpected, the surprising, the astonishing, are essential to and characteristic (2) \_\_\_\_\_ beauty. Two fundamental literary qualities: supernaturalism and irony. The blend (3) \_\_\_\_\_ the grotesque and the tragic are attractive to the mind, as is discord to blasé ears.

**Q46.** Select the most appropriate option to fill in blank number 1.

- (a) off
- (b) over
- (c) at
- (d) in

**Q47.** Select the most appropriate option to fill in blank number 2.

- (a) by
- (b) in
- (c) at
- (d) of

**Q48.** Select the most appropriate option to fill in blank number 3.

- (a) up
- (b) of
- (c) to
- (d) on

**Directions (49-50):** Read the following information carefully and answer the given questions.

The New Yorker article, "A Star in a Bottle" explained the ambitious project upon which, world-wide physicists and engineers are embarking on: the creation of an artificial "star", which humanity hopes to use for its energy to power our civilization. This "artificial star" is essentially a controlled fusion reaction which, when successful, releases a massive amount of energy (gamma rays, in compliance with  $E=mc^2$ ) that they can then harness as electricity. The current machine (work in progress) is the International Thermonuclear Experimental Reactor (ITER). This is an international project, which China, the U.S., Russia, and several European countries are participating in. The collaborators at ITER hope to use the machine to solve a major problem humanity faces as a civilization- the pollution in the atmosphere created by the burning of fossil fuels. The ITER project began during the Cold War in the mid-21st century. Apart from the obvious economic and environmental assets of such a machine, the curiosity of American physicists in the 21st century also acted as a major catalyst. In the early 1980's the Argentinian president, Juan Peron, incorrectly announced that his scientists had successfully constructed a fusion machine of such sorts. Americans, despite the fact that Peron's claim was a fraud, began to ponder and wonder that a thermonuclear fusion machine would look like. At that point, the U.S. government began to pour large amounts of money into the project, and was constantly disrupted by numerous set-backs and obstacles. One of the major problems the entire international collaboration faced was the issue of cost and each country's economic devotion to the project. The author claimed that as science and its frontier continued to advance, both the cost and complexity of further exploration sky rockets as well, which the ITER project clearly portrays.

**Q49.** According to the passage, what is major problem which the project ITER hopes to solve?

- (a) Reduction in pollution caused by the usage of fossil fuels
- (b) Reduction in the stress put on renewable resources
- (c) Solving the electricity crisis
- (d) Cost efficiency and energy saving



**Q50.** According to which country's fraudulent claim did America become curious about a thermonuclear fusion?

- (a) The U.K.
- (b) China
- (c) Russia
- (d) Argentina

**Q51.** A person gives  $\frac{1}{4}$  of his property to his daughter,  $\frac{1}{2}$  to his sons and  $\frac{1}{5}$  for charity. How much has he given away?

- (a)  $\frac{1}{20}$
- (b)  $\frac{19}{20}$
- (c)  $\frac{1}{10}$
- (d)  $\frac{9}{10}$

**Q52.** Salman and his wife Katrina appear in an interview for two vacancies in the same post. The probability of Salman's selection is  $\frac{1}{7}$  and that of his wife Katrina's selection is  $\frac{1}{5}$ . What is the probability that only one of them will be selected?

- (a)  $\frac{2}{7}$
- (b)  $\frac{1}{5}$
- (c)  $\frac{5}{7}$
- (d)  $\frac{5}{2}$

**Q53.** A sum of Rs. 730 was divided among A, B and C in such a way that if A gets Rs. 3 then B gets Rs. 4 and if B gets Rs. 3.50 then C gets Rs. 3. The share of B exceeds that of C by

- (a) Rs. 30
- (b) Rs. 40
- (c) Rs. 70
- (d) Rs. 210

**Q54.** If the selling price of an article is doubled, then its loss percentage gets converted into the equal profit percentage. What is the loss percentage?

- (a) 16.66
- (b) 50
- (c) 33.33
- (d) 37.5

**Q55.** Two successive discounts of 12% and 20% are given by Rajat on a shirt. If the marked price of the shirt is Rs. 500, then what is the value (in Rs.) of discount?

- (a) 198
- (b) 152
- (c) 148
- (d) 168

**Q56.** A tank can be filled by pipe A in 2 hours and pipe B in 6 hours. At 10 a.m. pipe A was opened. At what time will the tank be filled if pipe B is opened at 11 a.m.?

- (a) 12:45 a.m.
- (b) 5 p.m.
- (c) 11:45 a.m.
- (d) 12 p.m.

**Q57.** Robin can do a work alone in 9 days. Amit can do the same work alone in 6 days. Both of them finish the work together and they get a total Rs. 2500. What is the share (in Rs.) of Robin?

- (a) 1700
- (b) 1200
- (c) 1500
- (d) 1000

**Q58.** A mixture of 240 litres of juice and water contains 15% water. How much more water (in litres) should be added to this, so that the strength of water will become 25% in the new mixture?

- (a) 28
- (b) 32
- (c) 26
- (d) 34

**Q59.** A boy is driving car at the speed of 42 km/hr. He stops for 8 minutes at end of every 11 km. What will be the time (in minutes) taken by him to cover a distance of 84 km?

- (a) 138
- (b) 142
- (c) 156
- (d) 176

**Q60.** A taxi going at 90 km/hr takes 35 minutes to travel a certain distance. By how much should it increase its speed (in km/hr) to travel the same distance in 21 minutes?

- (a) 60
- (b) 150
- (c) 120
- (d) 90

**Q61.** If the diameter of a hemisphere is 21 cm, then what is the volume (in  $\text{cm}^3$ ) of hemisphere?

- (a) 2810
- (b) 1250.5
- (c) 1725.25
- (d) 2425.5

**Q62.** The average age of 120 members of a society is 60.7 yr. By addition of 30 new members, the average age becomes 56.3 yr. What is the average age (in yr) of newly joined members?

- (a) 36.5
- (b) 37.2
- (c) 38.3
- (d) 38.7

**Q63.** What number should be added to each of 4, 16, 18 and 58 so that the resulting numbers will be in proportion in the given order?

- (a) 2
- (b) 3
- (c) 4
- (d) 1

**Q64.** If  $\left(\frac{5}{7}\right)^{4x} \cdot \left(\frac{7}{5}\right)^{3x-1} = \left(\frac{7}{5}\right)^6$ , then find the value of x which satisfies the equation.

- (a) -1
- (b) -7
- (c) 1
- (d) 7

**Q65.** Calculate the total numbers of prime factors in the expression

$$(9)^{11} \times (5)^7 \times (7)^5 \times (3)^2 \times (17)^2$$

- (a) 35
- (b) 36
- (c) 37
- (d) 38

**Q66.** A group of boys has an average weight of 36 kg. One boy weighing 42 kg leaves the group and another boy weighing 30 kg joins the group. If the average now becomes 35.7 kg, then how many boys are there in the group?

- (a) 30
- (b) 32
- (c) 40
- (d) 56

**Q67.** A tall rectangular vessel is half filled with water. The base dimension of the vessel is 62 cm × 45 cm. A heavy metal cube of edge 15 cm is dropped into the vessel. The rise in level of the vessel is:

- (a) 1.21 cm
- (b) 1.15 cm
- (c) 1.07 cm
- (d) 1 cm

**Q68.** A sum of Rs. 13,440 was distributed in two parts. The first part given on loan at 4% per annum for three years while the second part at 6% for 5 years. If interests accrued on both the parts were equal, then what was the difference between the parts?

- (a) Rs. 3840
- (b) Rs. 3640
- (c) Rs. 9600
- (d) Rs. 5760

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**Q69.** O is the center of a circle with diameter 20 cm. T is a point outside the circle and TA is a tangent to a circle. If OT is 14.5 cm. What is the length (in cm) of the tangent TA?

- (a) 10 cm
- (b) 10.5 cm
- (c) 11.25 cm
- (d) 12 cm

**Q70.** If the increase in the percentage of the consumption of a sugar is 35% so that overall budget does not change, then the price of the sugar falls by :

- (a) 26.92%%
- (b) 25.92%
- (c) 25%
- (d) 30%

**Q71.** If the curved surface area of a cylinder  $1760 \text{ cm}^2$  with height 20cm. Find the total surface area of the cylinder.

- (a)  $2992 \text{ cm}^2$
- (b)  $2962 \text{ cm}^2$
- (c)  $2772 \text{ cm}^2$
- (d)  $2982 \text{ cm}^2$

**Q72.** Ramu sells his old stock at 35 percent loss on cost price, but uses 25 percent less weight. What is his percentage profit or loss (consider up to two decimals)?

- (a) Profit of 9.14 %
- (b) Loss of 13.3%
- (c) Profit of 7.14 %
- (d) Loss of 9.14 %

**Q73.** If Manish 's income is 37.5 percent more than Puneet income, then what percentage does Puneet earn less than Manish?

- (a) 21 37 percent
- (b) 25 37 percent
- (c) 27.27 percent
- (d) 28 47 percent

**Q74.** A flat's value is reduced by 11% percent and is now worth Rs.62,742,241. What was its original price?

- (a) Rs. 7,04,96,900
- (b) Rs. 7,88,96,200
- (c) Rs. 7,44,96,200
- (d) Rs. 7,54,96,200

**Q75.** The height of a cone 24 cm and area of the base of this cone =  $154 \text{ cm}^2$ . Find the curved surface area of the cone?

- (a)  $504 \text{ cm}^2$
- (b)  $550 \text{ cm}^2$
- (c)  $514 \text{ cm}^2$
- (d)  $524 \text{ cm}^2$

**Q76.** Select the option that is related to the third word in the same way as the second word is related to the first word.

(The words must be considered as meaningful English words and must not be related to each other based on the number of letters/number of consonants/vowels in the word)

Uttar Pradesh: Sarus Crane :: Delhi : ?

- (a) House Sparrow
- (b) Rake
- (c) Tractor
- (d) Wrench

**Q77.** Select the option that is related to the fifth term in the same way as the second term is related to the first term and fourth term is related to the third term.

RAJAN : 69 :: ARUN : 70 :: ABHISHEK : ?

- (a) 110
- (b) 130
- (c) 127
- (d) 128

**Q78.** Select the correct combination of mathematical signs to sequentially replace the A sign and to balance the given equation.

60 A 15 A 3 A 16 A 7 A 21

- (a)  $\div, \times, -, +, =$
- (b)  $\times, +, -, \div =$
- (c)  $\times, \div, -, +, =$
- (d)  $\div, \times, +, -, =$

**Q79.** In a code language, 'These birds eat insects.' is coded as '5537', 'I can not disclose the range' coded as '133835', 'nights are dark' is coded as '634', . What is the code of 'Wishing everyone happy Deepawali'?

- (a) 7859
- (b) 5464
- (c) 9775
- (d) 7869

**Q80.** Which two signs should be interchanged to make the below equation mathematically correct?

$64 - 8 \times 2 + 63 \div 49 = 30$

- (a) + and  $\div$
- (b)  $\div$  and -
- (c) + and  $\times$
- (d) - and +

**Q81.** Seven people, Ritika, Chaya, Komal, Tanu, Monika, Neha and Sobha are sitting in a straight row, facing north. Ritika sits second from the left. Only two people sit between Ritika and Komal. Only 3 people sit between Tanu and Neha and Tanu is an immediate neighbour of Ritika. Chaya is an immediate neighbour of Tanu and Monika is not an immediate neighbour of Komal. Who sits to the immediate right of Komal

- (a) Chaya
- (b) Sobha
- (c) Ritika
- (d) Tanu

**Q82.** Which of the following numbers will replace the question mark (?) in the given series?

1, 2, 10, 37, 101, ?

- (a) 236
- (b) 348
- (c) 248
- (d) 544

**Q83.** In a certain code language,

'P + Q' means 'P is the sister of Q',

'P - Q' means 'A is the father of B',

'P x Q' means 'A is the brother of B' and

'P & Q' means 'A is the son of B'.

How is A related to E if  $A + B - C \times D \& E$ ?

- (a) Daughter
- (b) Sister
- (c) Mother's sister
- (d) Husband's sister

**Q84.** Select the option that is related to the third number in the same way as the second number is related to the first number and the sixth number is related to the fifth number.

8 : 729 :: 12 : ? :: 15 : 4,096

- (a) 2367
- (b) 2197
- (c) 3437
- (d) 3135

**Q85.** Which of the following numbers will replace the question mark (?) in the given series?

5 : 61 :: 6 : ?

- (a) 96
- (b) 91
- (c) 97
- (d) 85

**Q86.** Three statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All birds are aeroplanes.

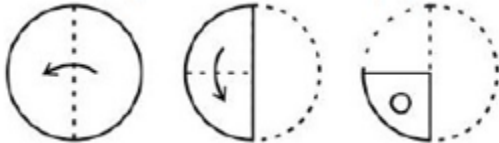
All kites are aeroplanes.

All aeroplanes are butterflies.

**Conclusions:**

- I. All kites are butterflies.
- II. Some butterflies are birds.
- III. Some butterflies are kites.
- (a) Only conclusions I and II follow
- (b) Only conclusions I and III follow
- (c) All conclusions follow
- (d) Only conclusions II and III follow.

**Q87.** The sequence of folding a piece of paper and the manner in which the folded paper has been cut is shown in the following figures. How would this paper look when unfolded?



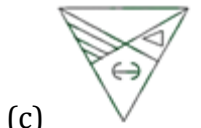
- (a)
- (b)
- (c)
- (d)



**Q88.** Select the mirror image of the given figure when the mirror is placed to the right of the figure.



- (a)
- (b)

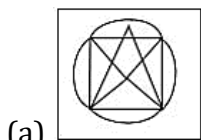


(c)

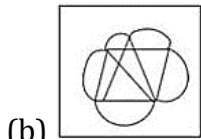


(d)

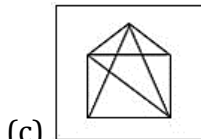
**Q89.** Select the option in which the given figure is embedded. (Rotation is NOT allowed)



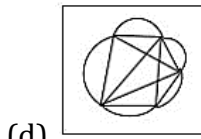
(a)



(b)

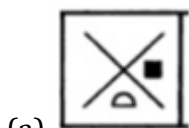


(c)

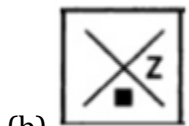


(d)

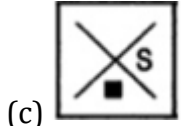
**Q90.** Select the figure from among the given options that can replace the question mark (?) in the following series.



(a)



(b)



(c)

**Test**  
**Prime**

ALL EXAMS,  
ONE SUBSCRIPTION.





(d)

**Q91. In each of the following questions, four words have been given out of which three are alike in same manner, while the fourth one is different. Choose the word which is different from the rest.**

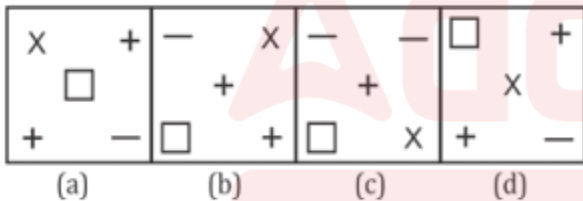
- (a) Commander
- (b) Major
- (c) Brigadier
- (d) Captain

**Q92. In each of the following questions, four words have been given out of which three are alike in same manner, while the fourth one is different. Choose the word which is different from the rest.**

- (a) Bhagwat Geeta
- (b) Quran
- (c) Ramayana
- (d) Mahabharat

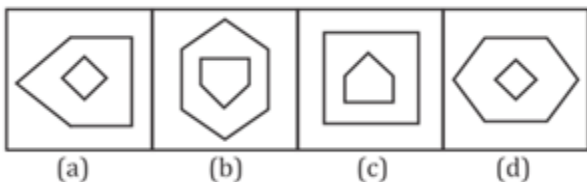
**Directions (93-94): In each problem, out of the four figures marked (A) (B) (C) and (D) three are similar in a certain manner. However, one figure is not like the other three. Choose the figure which is different from the rest.**

**Q93.**



- (a) a
- (b) b
- (c) c
- (d) d

**Q94.**

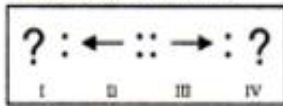


- (a) a
- (b) b
- (c) c
- (d) d

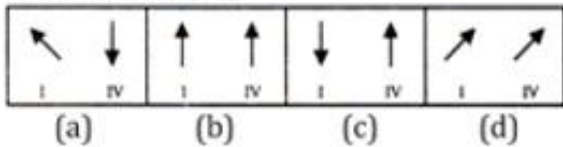
Directions (95-96): In each of the following questions, there are four figures marked I, II, III and IV which constitute the problem set and four figures marked A, B, C and D, each further consisting of the two figures marked I and IV which constitute the answer set. Select a figure from the answer set, the contents of which may best substitute the question marks in problem set such that fig. III is related to fig. IV in the same way as fig. I is related to fig. II

Q95.

PROBLEM FIGURES



ANSWER FIGURES



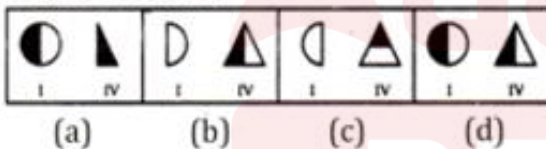
- (a) a
- (b) b
- (c) c
- (d) d

Q96.

PROBLEM FIGURES



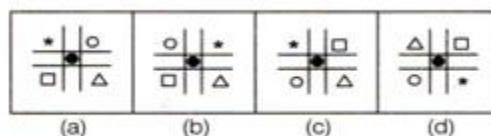
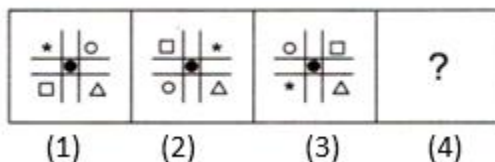
ANSWER FIGURES



- (a) a
- (b) b
- (c) c
- (d) d

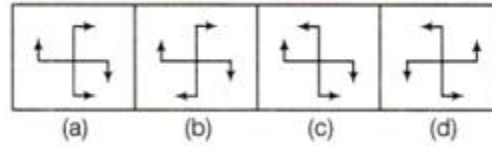
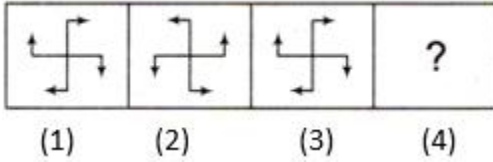
Directions (97-98): Each of the following questions consists of four figures marked 1, 2, 3, and 4 called the problem figures followed by four other figures marked a, b, c and d called the Answer figures. Select a figure from amongst the Answer figures which will continue the same series as established by the five figures.

Q97.



- (a) a
- (b) b
- (c) c
- (d) d

**Q98.**



- (a) a
- (b) b
- (c) c
- (d) d

**Q99.** How many triangle are there in the given figure.



- (a) 14
- (b) 15
- (c) 17
- (d) 18

**Q100.** Present ages of R and P are in the ratio of 9 : 11, respectively. After 7 yr, their ages will be in the ratio of 26 : 31 and sum of their ages will be 114 yr. What is the present age (in yr) of P?

- (a) 36
- (b) 35
- (c) 55
- (d) 45

## Solutions

**S1. Ans.(c)**

**Sol.** The correct answer is: (c) Both 1 and 2.

Operation Zindagi was a rescue operation aimed at saving workers who were trapped in the Silkyara tunnel in Uttarakhand. The tunnel, part of a road construction project, experienced a blockage due to a landslide, leading to several laborers becoming stranded. This operation specifically targeted rescuing these individuals from the under-construction tunnel, which is accurately described in statement 1. The location of this tunnel in Uttarakhand, as mentioned in statement 2, is also correct.

**S2. Ans.(d)**

**Sol.** The correct answer is: (d) Tenth Schedule.

The anti-defection law is contained in the Tenth Schedule of the Indian Constitution. This Schedule was added by the 52nd Amendment in 1985. It is designed to address the issue of political defections by legislators, providing a framework for disqualifying members of Parliament and state legislatures who defect from the parties on whose ticket they were elected, unless a specified fraction of party members defect together, thus preventing political instability caused by frequent changes of allegiance.

**S3. Ans.(c)**

**Sol.** The correct answer is: (c) Isoseismic Lines.

Isoseismic lines are used on maps to connect points that experienced equal intensity of shaking during an earthquake. These lines help in understanding the distribution and intensity of seismic activity across different regions affected by the same earthquake. They are similar in concept to isobars in weather mapping, which join points of equal atmospheric pressure.

**S4. Ans.(d)**

**Sol.** The correct answer is: (d) Light years.

Light years are used as the unit of measurement to calculate the separation between heavenly bodies. A light year is the distance that light travels in one year in a vacuum, approximately 9.46 trillion kilometers (about 5.88 trillion miles). This unit is particularly useful in astronomy because it helps convey the vast distances in space that are not easily comprehensible using smaller units like kilometers or miles.

**S5. Ans.(a)**

**Sol.** The correct answer is: (a) Shiv Shakti Point.

The lunar landing site of the Chandrayaan lander is known as Shiv Shakti Point. This was the designated touchdown area for the Vikram lander in India's Chandrayaan-2 mission to the Moon.

**S6. Ans.(c)**

**Sol.** The correct answer is: (c) Spain.

The C295 is a tactical transport aircraft produced by Airbus Defence and Space, which is headquartered in Spain. This aircraft is part of the company's military transport family and is used for various operations, including transportation, reconnaissance, and rescue missions, showcasing the versatility and capability of modern aerospace engineering from Spain.

**S7. Ans.(a)**

**Sol.** The correct answer is: (a) Ahmednagar.

While incarcerated in Ahmednagar Fort during British rule in India, Pandit Jawaharlal Nehru wrote the book "Discovery of India." This work is a broad survey of Indian history, culture, and philosophy, written during Nehru's imprisonment in 1942-1946 as part of the Quit India movement.

**S8. Ans.(a)**

**Sol.** The correct answer is: (a) Devprayag.

The Bhagirathi River meets the Alaknanda River at Devprayag in Uttarakhand, India. This confluence is significant as it marks the official beginning of the Ganges River, which is considered one of the most sacred rivers in Hinduism. Devprayag is one of the Panch Prayag, or five sacred river confluences, in the region.

**S9.Ans.(c)**

**Sol.** The correct answer is: (c) USA.

The joint military exercise known as "Vajra Prahar" is conducted between India and the United States. This exercise is an Indo-US Special Forces joint training event, focused on enhancing coordination and interoperability of special operation forces of both countries, involving various maneuvers and drills related to counter-terrorism and special operations.

**S10.Ans.(b)**

**Sol.** In August 2023, Jaya Varma Sinha was named Chairman and CEO of the Railway Board.

**S11.Ans.(c)**

**Sol.** The correct answer is: (c) Indonesia.

Indonesia is not a member of the South Asian Association for Regional Cooperation (SAARC). SAARC is an organization of South Asian nations, which includes Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka, and Afghanistan. Indonesia, located in Southeast Asia, does not belong to this regional grouping.

**S12.Ans.(b)**

**Sol.** The correct answer is: (b) Golf.

The Japan Challenge Tour is associated with golf. It is a series of professional golf tournaments that are primarily a development tour for the Japan Golf Tour, providing up-and-coming players a platform to compete and develop their skills in a professional setting.

**S13.Ans.(b)**

**Sol.** The correct answer is: (b) Sutlej.

Ropar, also known as Rupnagar, is situated on the banks of the Sutlej River in the Indian state of Punjab. This location is significant historically, particularly with archaeological findings that link it to the Indus Valley Civilization.

**S14.Ans.(c)**

**Sol.** The correct answer is: (c) Newton's third law of motion.

Newton's third law of motion states that for every action, there is an equal and opposite reaction. When a ball bounces after falling to the ground, it demonstrates this principle. The ball exerts a force on the ground when it hits, and in return, the ground exerts an equal and opposite force on the ball, causing it to bounce back up. This interaction between the ball and the ground is a perfect illustration of Newton's third law.

**S15.Ans.(b)**

**Sol.** The correct answer is: (b) Dholera.

A new Greenfield airport is planned to be developed in Dholera, Gujarat. This project is part of a larger initiative to support the region's development as a smart city and to accommodate the growing air traffic demands in Gujarat, especially to ease the load on existing airports such as the one in Ahmedabad. Dholera is envisioned to become a major economic and industrial hub, with the new airport playing a crucial role in its infrastructure development.

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**S16.Ans.(a)**

**Sol.** The correct answer is: (a) Akbar.

Akbar, the Mughal emperor, founded the Tasvir Khana, a workshop or studio for artists during his reign. This workshop was significant in the development of Mughal painting, as it brought together artists from various regions, including Persia. These artists collaborated to create a unique style that combined Persian influences with Indian themes, significantly enhancing the artistic landscape of the Mughal Empire. Akbar's patronage of the arts was part of his broader effort to foster cultural and religious diversity within his empire.

**S17.Ans.(a)**

**Sol.** The Kalvari class submarine that was put into service on January 23, 2023, is the INS Vagir.

**S18.Ans.(b)**

**Sol.** The correct answer is: (b) Westland Wapiti.

The Westland Wapiti was the first aircraft to be inducted into the Indian Air Force (IAF) when it was established in 1932. The Wapiti, a British biplane, served as the backbone of the IAF in its early days, primarily used for reconnaissance and training purposes. This aircraft played a significant role in the foundation and early development of the IAF.

**S19.Ans.(d)**

**Sol.** The correct answer is: (d) Dhruvastra.

Dhruvastra is the name for a domestically produced guided anti-tank missile in India. It is an advanced version of the Nag missile system, designed for launching from helicopters and providing accurate targeting capabilities against armored targets from a distance. This missile system is part of India's ongoing efforts to enhance its indigenous defense technology and capabilities.

**S20.Ans.(a)**

**Sol.** The correct answer is: (a) Wilhelm Roentgen.

Wilhelm Roentgen, a German physicist, is credited with the discovery of X-rays in 1895. He made this groundbreaking discovery while experimenting with cathode rays, leading to the development of X-ray technology, which has since had a profound impact on medical diagnostics and numerous other fields. Roentgen's discovery earned him the first Nobel Prize in Physics in 1901.

**S21.Ans.(b)**

**Sol.** In 2023, India hosted the G20 summit with the theme "Vasudhaiva Kutumbakam: One Earth, One Family, One Future." This theme, derived from the ancient Sanskrit text of the Maha Upanishad, emphasizes the interconnectedness of all life forms — humans, animals, plants, and microorganisms — and the collective responsibility for a sustainable future.

**S22.Ans.(c)**

**Sol.** The correct answer is: (c) Bengaluru.

The headquarters of the Indian Space Research Organization (ISRO) is located in Bengaluru, Karnataka, India. Bengaluru, often referred to as the Silicon Valley of India, hosts this prestigious national space agency, which is at the forefront of India's space missions and satellite launches.

**S23.Ans.(b)**

**Sol.** The correct answer is: (b) Raja Rammohan Roy.

Raja Rammohan Roy is recognized as the founder of the Brahmo Samaj, which was established in 1828. The Brahmo Samaj played a significant role in the social and religious reform movements in India, advocating for a monotheistic approach to spirituality and emphasizing the importance of rationality and ethical conduct in religious practices. Raja Rammohan Roy's efforts were pivotal in shaping modern Indian society by challenging traditional Hindu culture and promoting progressive values.

**S24.Ans.(a)**

**Sol.** The correct answer is: (a) Cricket.

The terms "fine leg," "gully," and "midwicket" are all fielding positions in the sport of cricket. These terms are used to describe specific locations on the cricket field relative to the batsman's stance and the pitch. "Fine leg" refers to a position behind the batsman on the leg side, "gully" is located close to the slips on the off side, just behind square, and "midwicket" is on the leg side, roughly halfway between the batsman and the boundary. Each position has strategic importance based on the style of the batsman and the type of bowling being delivered.

**S25.Ans.(a)**

**Sol.** The correct answer is: (a) India.

India has the longest railway station platform in the world. The platform is located at Hubballi Railway Station in Karnataka and spans 1,507 meters, making it the longest in the world according to the Guinness World Records.

**S26. Ans.(a)**

**Sol.** The word "curious" refers to having a strong desire to know or learn something. When someone is curious, they are interested, inquisitive, or eager to explore new things or ideas.

- The opposite of being curious would-be lacking interest or showing disinterest in exploring or knowing more about something.
- The word "unconcerned" captures this idea well. It means not interested or not showing any particular interest or care about something. So, in the context of the given question, "unconcerned" is the most appropriate opposite to "curious."
- Synonyms: Inquisitive, Interested, Investigative, Intrigued.
- Antonyms: Uninterested, Indifferent, Apathetic, Unconcerned.

Meanings of the other given words:

- Impassionate: Lacking passion or strong emotion.
- Complex: Complicated or difficult to understand.
- Suspicion: A feeling or belief that someone is guilty of something, typically without evidence or proof.

**S27. Ans.(c)**

**Sol.** The word "incurable" refers to something that cannot be corrected, reformed, or improved. It describes a situation or a person who is resistant to change or reform despite efforts to correct their behavior or condition.

- Meanings of the other words provided:
- Tremor: A trembling or shaking movement, often involuntary, typically caused by excitement, nervousness, or weakness.

- Ineligible: Not qualified or entitled to do or receive something; legally or officially disqualified.
- Intangible: Not able to be touched or grasped; not having physical presence, often referring to abstract concepts or qualities that cannot be perceived by touch.

**S28. Ans.(a)**

**Sol.** The correct phrase to use in this sentence is "move in." This phrase is used when someone is planning to live together in the same house or apartment, commonly implying sharing a living space. The other options do not fit contextually in this sentence. Therefore, the best choice is:

Radhika decided to move in with me.

**S29. Ans.(a)**

**Sol.** The most appropriate 'one word' for something that is done, occurring, or active at night is option (a) Nocturnal. The word 'nocturnal' specifically refers to activities or behaviors that take place during the night.

- The meanings of the other options are as follows:
- Cothurn: This does not relate to night-time activities. It refers to a type of ancient Greek or Roman boot, often used in tragic plays.
- Adjournal: This term is not related to time of day; it's a legal term related to adjournment.
- Diuturnal: This term is related to duration, particularly long duration, and is not specific to night-time activities.

**S30. Ans.(a)**

**Sol.** The word that is closest in meaning (synonym) to "Vandalize" is (a) Desecrate.

- "Vandalize" means to deliberately destroy or damage property, especially public or shared property. "Desecrate" also involves showing a lack of respect for something sacred or important, often through damage or destruction, making it the closest synonym among the given options.

The meanings of the other options are:

- Ascertain: To find out something for certain; to determine.
- Commemorate: To remember and show respect for someone or something in a ceremony.
- Venerate: To regard or treat with deep respect; to revere.

**S31. Ans.(a)**

**Sol.** The sentence is talking about a past action. It refers to what he did "Prior to this assignment," indicating an action that has already been completed.

- When discussing past actions, the verb should be in the past tense. The correct past tense form of "work" is "worked."
- The original sentence uses "work," which is the base form or present tense of the verb. This is grammatically incorrect in the given context, as it does not agree with the past time frame indicated by "Prior to this assignment."
- Therefore, segment (a) should be corrected from "he work" to "he worked." The corrected sentence reads: "Prior to this assignment, he worked as an officer in the accounts department."

**S32. Ans.(b)**

**Sol.** The correct 'one word' for the expression "self-pityingly or tearfully sentimental" is option (b) Maudlin: This term specifically refers to being overly sentimental, often in a tearful or self-pitying way.



- The other options do not match the given expression:
- Cisplatin: This is a chemotherapy drug used to treat various types of cancers.
- Codlin: This does not correspond to the expression. "Codlin" is not a widely recognized term in this context.
- Myelin: This refers to the insulating covering that surrounds nerve cells.

**S33. Ans.(c)**

**Sol.** The idiom "Haste makes waste" means that rushing too quickly often results in mistakes or poor outcomes. The phrase emphasizes that taking more time to do something often results in a better result than doing it too quickly and having to redo it.

**S34. Ans.(b)**

**Sol.** 'Avert' means to turn away, avoid, or prevent something, especially a disaster or something undesirable. It implies an action taken to stop something bad from happening.

- 'Assist' means to help, aid, or support. It refers to providing help or support to make a task easier or possible, which is the opposite of preventing or avoiding something.
- Synonyms: Prevent, Avoid, Stop, Ward off.
- Antonyms: Facilitate, Aid, Assist, Encourage.

Meanings of the other given words:

- Thwart: To oppose successfully or prevent someone from accomplishing something; similar in meaning to avert.
- Elude: To evade or escape from, often in a skillful or cunning manner. This is more about escaping than preventing.
- Compensate: To make up for something lost or damaged, or to provide something good as a balance against something bad.

**S35. Ans.(c)**

**Sol.** Dilatory means tending to delay or procrastinate, not prompt or timely.

- Prompt means done quickly and without delay, or on time.
- Antonyms: Prompt, Expedient, Swift.
- Synonyms: Slow, Tardy, Procrastinating.

Meanings of the other given words:

- Unhurried: Not hurried; relaxed and leisurely.
- Postponing: Causing something to happen at a later time; delaying.
- Idle: Not active or in use; without purpose or effect; pointless.

**S36. Ans.(b)**

**Sol.** The word with the correct spelling among the options is option (b) Fallacious: This means based on a mistaken belief or deceptive, misleading.

**S37. Ans.(c)**

**Sol.** The correct order for the sentence is option (c) DABC.

- D: "Having heard rumours of mass transfers" - This part sets the context for the sentence. It introduces the main reason for the employees' subsequent reactions - they have heard rumors about mass transfers.

- A: "and their nervousness could be seen on their faces" - Following the introduction of the rumors, this part describes the immediate emotional response of the employees. It's a continuation of the first part, elaborating on the effect of the rumors on the employees' demeanor.
- B: "the employees of the MNC were on tenterhooks all day" - This part further describes the state of the employees due to the rumors. "Being on tenterhooks" means being in a state of anxious suspense, which is a natural follow-up to their nervousness.
- C: "that they got from the grapevine" - The final part of the sentence clarifies the source of the rumors, indicating that this information was unofficial or spread informally, as is often implied by the term "grapevine."

**S38. Ans.(d)**

**Sol.** Option (d) CADB gives the correct order to form a meaningful sentence.

- C: "having reached higher classes" indicates a condition or state that the students have achieved.
- A: "students were expected" sets the expectation for the students.
- D: "to know the formulas and principles" specifies what the students were expected to know.
- B: "studied in earlier classes" provides context about what the students studied in their earlier classes.

**S39. Ans.(b)**

**Sol.** The idiom "Barking up the wrong tree" is an expression used to convey that someone is making a mistake or looking for answers or solutions in the wrong place or from the wrong source. It suggests that their efforts are futile because they are pursuing a course of action that is unlikely to lead to the desired outcome.

**S40. Ans.(a)**

**Sol.** The most appropriate option to fill in the blank is option (a) has.

- The sentence would be: "The problem, at least for those holidaying in Gibraltar, is that neither of these hotels has a beach."
- "The problem" is singular, so it should be followed by a singular verb, which is "has."
- "Neither of these hotels" is a construction that also takes a singular verb because it refers to two hotels collectively, not individually.
- The other options (b) have, (c) had, and (d) having do not match the subject-verb agreement required in this sentence.

**S41. Ans.(b)**

**Sol.** In this sentence, we are comparing the intelligence of two individuals, your brother and your father. When making comparisons of superiority or inferiority between two people or things, we use comparative forms of adjectives.

- "More" is the comparative form of the adjective "much" or "many," and it is used when comparing two things to indicate that one has a greater degree of the quality described. In this case, we are comparing the intelligence of your brother to that of your father, so "more" is appropriate.
- So, the correct sentence is: "Your brother is more intelligent than your father."
- The other options:
- "Most" is used for superlative comparisons when something has the highest degree of a quality among three or more items.

- "Many" is not an appropriate choice for this context because it doesn't convey the comparison of intelligence.
- "Much" is an adverb and doesn't fit in this context where we are comparing the degree of intelligence.

**S42. Ans.(c)**

**Sol.** The correct spelling is "Reciprocity." This word refers to the practice of exchanging things with others for mutual benefit, especially privileges granted by one country or organization to another.

**S43. Ans.(a)**

**Sol.** The word that means the same as "The ability to make good judgments and take quick decisions" is "Acumen." Acumen refers to the ability to make sound judgments and quick decisions, especially in practical matters. Options (b), (c), and (d) do not convey the same meaning in this context.

**S44. Ans.(c)**

**Sol.** In this sentence, the grammatical error is in the phrase "Shall her flight." The use of "Shall" in this context is not appropriate. "Shall" is a modal verb used for making suggestions or expressing a future possibility, but it is not commonly used in conditional sentences.

The corrected sentence is: "If her flight gets cancelled, your mother says she will send you a message."

**S45. Ans.(a)**

**Sol.** The error in option (a) is the use of "see" instead of "seen." The phrase "the objects see in the sky" is grammatically incorrect. It should use the past participle form of the verb "see," which is "seen," to properly convey the meaning that the objects were observed in the past.

Corrected Sentence: "In the ancient world, theories of the origin of Earth and the objects seen in the sky were certainly much less constrained."

**S46. Ans.(d)**

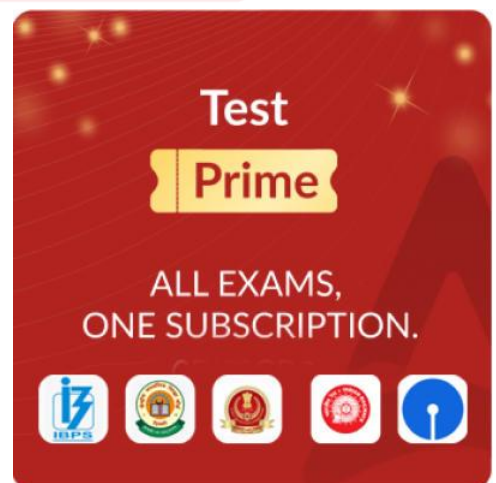
**Sol.** The word that can be filled in the blank is 'in'.

- **Off** means away from the place in question; to or at a distance.
- **Over** is used to talk about movement or position at a higher level than something else.
- **'In'** is a preposition which is used for expressing the situation of something that is or appears to be enclosed or surrounded by something else.
- As per the context, the word 'in' fits in very well & hence, it is the correct option.

**S47. Ans.(d)**

**Sol.** The word that can be filled in the blank is 'of' to make the sentence grammatically and contextually correct.

- **By** is used for identifying the agent performing an action.
- **'In'** is a preposition which is used for expressing the situation of something that is or appears to be enclosed or surrounded by something else.
- **Of** is used for expressing the relationship between a part and a whole.
- As per the context, the word 'of' fits in very well & hence, it is the correct option.



**S48. Ans.(b)**

**Sol.** The word that can be filled in the blank is 'of' to make the sentence grammatically and contextually correct.

- **Of** is used for expressing the relationship between a part and a whole.
- **On** means supported by, fixed to or touching something, especially a surface.
- **To** as a preposition is used to indicate a destination or direction.
- As per the context, the word 'of' fit in very well & hence, it is the correct option.

**S49. Ans.(a)**

**Sol.** The major problem which the ITER project hopes to solve is the reduction in pollution caused by the usage of fossil fuels. The passage states that the collaborators at ITER hope to use the machine to address the pollution in the atmosphere created by the burning of fossil fuels.

**S50. Ans.(d)**

**Sol.** America became curious about a thermonuclear fusion due to a fraudulent claim made by Argentina. In the early 1980s, the Argentinian president, Juan Peron, incorrectly announced that his scientists had successfully constructed a fusion machine, sparking curiosity among American physicists.

**S51. Ans.(b)**

**Sol.**

Part of the given property  

$$= \frac{1}{4} + \frac{1}{2} + \frac{1}{5} = \frac{5+10+4}{20} = \frac{19}{20}$$

**S52. Ans.(a)**

**Sol.**

P (only one of them will be selected)

$$= P [(E \text{ and not } F) \text{ or } (F \text{ and not } E)]$$

$$= P [(E \cap \bar{F}) \cup (F \cap \bar{E})]$$

$$= P (E)P(\bar{F}) + P (F)P(\bar{E})$$

$$= \frac{1}{7} \times \frac{4}{5} + \frac{1}{5} \times \frac{6}{7} = \frac{2}{7}$$

**S53. Ans.(b)**

**Sol.**

According to the question,

$$A : B = 3 : 4$$

$$\text{and } B : C = 3.50 : 3 = 7 : 6$$

$$\therefore A : B : C = (3 \times 7) : (4 \times 7) : (4 \times 6)$$

$$= 21 : 28 : 24$$

$$\therefore \text{Sum of ratios} = 21 + 28 + 24 = 73$$

Hence, difference between the shares of B and C

$$= \left( \frac{28-24}{73} \right) \times 730$$

$$= 4 \times 10 = \text{Rs. } 40$$

**S54. Ans.(c)**

**Sol.**

Let loss percentage =  $x$

If cost price = 100

Then, selling price =  $(100 - x)$

According to the question,

$$2(100 - x) - 100 = x$$

$$\Rightarrow 200 - 2x - 100 = x$$

$$\Rightarrow 3x = 100$$

$$\therefore x = \frac{100}{3} = 33.33\%$$

**S55. Ans.(c)**

**Sol.**

According to the question,

$$\text{Value of selling price} = 500 \times \frac{88}{100} \times \frac{80}{100} = \text{Rs. } 352$$

$\therefore$  Required discount

$$= 500 - 352 = \text{Rs. } 148$$

**S56. Ans.(c)**

**Sol.**

Part filled in 1 hour with tap A =  $\frac{1}{2}$

Part filled in 1 hour with two taps

$$= \frac{1}{2} + \frac{1}{6} = \frac{3+1}{6} = \frac{2}{3}$$

$\therefore$  Time taken to fill  $\frac{2}{3}$  part = 60 minutes

$\therefore$  Time taken to fill  $\frac{1}{2}$  part

$$= \frac{60 \times 3}{2} \times \frac{1}{2} = 45 \text{ minutes}$$

So, tank will fill at 11 : 45 am.

**S57. Ans.(d)**

**Sol.**

Work efficiency of Robin and Amit =  $6 : 9 = 2 : 3$

Hence, Robin's part of Rs.2500

$$= \frac{2500}{5} \times 2 = \text{Rs. } 1000$$

**S58. Ans.(b)**

**Sol.**

According to the question,

Water in the mixture

$$= 240 \times \frac{15}{100} = 12 \times 3 = 36 \text{ litres}$$

and juice =  $240 - 36 = 204$  litres

Let  $x$  litres water is mixed, then

$$\frac{36+x}{240+x} \times 100 = 25$$

$$\Rightarrow 4(36 + x) = 240 + x$$

$$\Rightarrow 144 + 4x = 240 + x$$

$$\Rightarrow 4x - x = 240 - 144$$

$$\Rightarrow 3x = 96$$

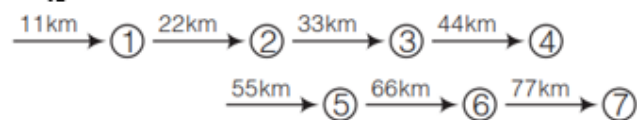
$$\therefore x = \frac{96}{3} = 32 \text{ litres}$$

**S59. Ans.(d)**

**Sol.**

If boys are continuously running, then time taken to cover the distance

$$= \frac{84}{42} = 2 \text{ hours}$$



Number of stop in 84 km = 7

$\therefore$  Total rest time =  $7 \times 8 = 56$  minutes

$\therefore$  Required time to complete certain distance = 2 hours + 56 minutes

=  $120 + 56 = 176$  minutes

**S60. Ans.(a)**

**Sol.**

Speed = 90 km/hr

Time = 35 minutes =  $\frac{35}{60}$  hours

$\therefore$  Distance = Speed  $\times$  Time

$$= 90 \times \frac{35}{60} = 52.5 \text{ km}$$

To cover 52.5 km in 21 minutes

$$\text{Speed of taxi} = \frac{52.5 \times 60}{21}$$

$$= 150 \text{ km/hr}$$

$\therefore$  Increase in speed =  $150 - 90 = 60$  km/hr

**S61. Ans.(d)**

**Sol.**

$$\text{Volume of hemisphere} = \frac{2}{3} \pi r^3$$

$$= \frac{2}{3} \times \frac{22}{7} \times \left(\frac{21}{2}\right)^3 = 2425.5 \text{ cm}^3$$

**S62. Ans.(d)**

**Sol.**

The average age of newly joined members

$$= \frac{[(120+30) \times 56.3 - 120 \times 60.7]}{30}$$

$$= \frac{8445 - 7284}{30} = \frac{1161}{30} = 38.7$$

**S63. Ans.(a)**

**Sol.**

Let  $x$  would be added to each number.

According to the question,

$$(4 + x) : (16 + x) :: (18 + x) : (58 + x)$$

$$\Rightarrow (4 + x) \times (58 + x) = (16 + x) \times (18 + x)$$

$$\Rightarrow 232 + 4x + 58x + x^2 = 288 + 16x + 18x + x^2$$

$$\Rightarrow 62x - 34x = 288 - 232$$

$$\Rightarrow 28x = 56$$

$$\therefore x = \frac{56}{28} = 2$$

Hence, required number = 2

**S64. Ans.(b)**

**Sol.**

$$\left(\frac{5}{7}\right)^{4x} \cdot \left(\frac{7}{5}\right)^{3x-1} = \left(\frac{7}{5}\right)^6$$

$$\Rightarrow \left(\frac{7}{5}\right)^{-4x} \cdot \left(\frac{7}{5}\right)^{3x-1} = \left(\frac{7}{5}\right)^6$$

$$\Rightarrow \left(\frac{7}{5}\right)^{-4x+3x-1} = \left(\frac{7}{5}\right)^6$$

$$\Rightarrow \left(\frac{7}{5}\right)^{-x-1} = \left(\frac{7}{5}\right)^6$$

On comparing,

$$\Rightarrow -x - 1 = 6 \Rightarrow -x = 6 + 1 = 7$$

$$\therefore x = -7$$

**S65. Ans.(d)**

**Sol.**

Given expression

$$= (9)^{11} \times (5)^7 \times (7)^5 \times (3)^2 \times (17)^2$$

$$= (3)^{22} \times (5)^7 \times (7)^5 \times (3)^2 \times (17)^2$$

$\therefore$  Total number of prime factors

$$= 22 + 7 + 5 + 2 + 2 = 38$$

**S66. Ans.(c)**

**Sol.** Let the number of boys in the group =  $x$

According to the question,

$$35.7 \times x = 36 \times x - 42 + 30$$

$$\Rightarrow 35.7x = 36x - 12$$

$$\Rightarrow 0.3x = 12 \therefore x = 40$$

**S67. Ans.(a)**

**Sol.**

Water rise in the form of cube volume

$$= \frac{15 \times 15 \times 15}{62 \times 45} = 1.21 \text{ cm}$$

**S68. Ans.(d)**

**Sol.**

$$\frac{p_1 r_1 t_1}{100} = \frac{p_2 r_2 t_2}{100}$$

$$\frac{p_1}{p_2} = \frac{r_2 t_2}{r_1 t_1} = \frac{6 \times 5}{3 \times 4} = \frac{5}{2}$$

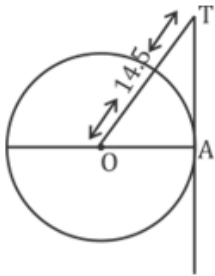
$$\text{I part} = \frac{5}{2+5} \times 13440 = 9600$$

$$\text{Second part} = \frac{2}{2+5} \times 13440 = 3840$$

$$\text{So, diff} = 9600 - 3840 = 5760$$

**S69. Ans.(b)**

**Sol.**



Diameter = 20 cm

OA = 10 cm

we know that

$$OT^2 = (OA)^2 + (AT)^2$$

$$\Rightarrow (14.5)^2 = (10)^2 + (AT)^2$$

$$\Rightarrow AT^2 = 210.25 - 100$$

$$AT = 10.5 \text{ cm}$$

**S70. Ans.(b)**

**Sol.**

Old	:	New
Consumption 100	:	135
Price 135	:	100

The price of the sugar falls

$$= \frac{(135-100)}{135} \times 100$$

$$= 25.92\%$$

**S71. Ans.(a)**

**Sol.**

Curved surface area of the Cylinder =  $1760 \text{ cm}^2$

$$2\pi r H = 1760$$

$$2 \times \frac{22}{7} \times r \times 20 = 1760$$

$$r = \frac{1760 \times 7}{880} = 14 \text{ cm}$$

Total surface Area = Curved surface Area +  $2 \times \pi r^2$

$$= 1760 + 2 \times \frac{22}{7} \times 14 \times 14$$

$$= 1760 + 1232$$

$$= 2992 \text{ cm}^2$$



**S72. Ans.(b)**

**Sol.**

Cost Price	:	Selling Price
100	:	65
750	:	1000
<u>750</u>	:	<u>650</u>
15	:	13

$$\begin{aligned}\text{Loss \%} &= \left(\frac{15-13}{15}\right) \times 100 \\ &= \frac{40}{3} \\ &= 13.3\% \text{ loss}\end{aligned}$$

**S73. Ans.(c)**

**Sol.**

$$37.5\% = 3/8$$

Manish's Income : Puneet's Income

$$11 \quad : \quad 8$$

$$\begin{aligned}&= \left(\frac{11-8}{11}\right) \times 100 \\ &= \frac{300}{11}\% = 27.27 \text{ percent}\end{aligned}$$

**S74. Ans.(a)**

**Sol.**

According to the question

$$89\% \rightarrow 62,742,241$$

$$1\% \rightarrow \frac{62,742,241}{89}$$

$$\text{Flat Original Price} = \frac{62,742,241}{89} \times 100$$

$$= \text{Rs. } 7,04,96,900$$

**S75. Ans.(b)**

**Sol.**

$$\text{Height} = 24$$

$$\text{Base Area} = 154$$

$$\pi r^2 = 154$$

$$\frac{22}{7} \times r^2 = 154$$

$$r^2 = 7 \times 7$$

$$r = 7 \text{ cm}$$

Slant height of the cone

$$l = \sqrt{H^2 + r^2}$$

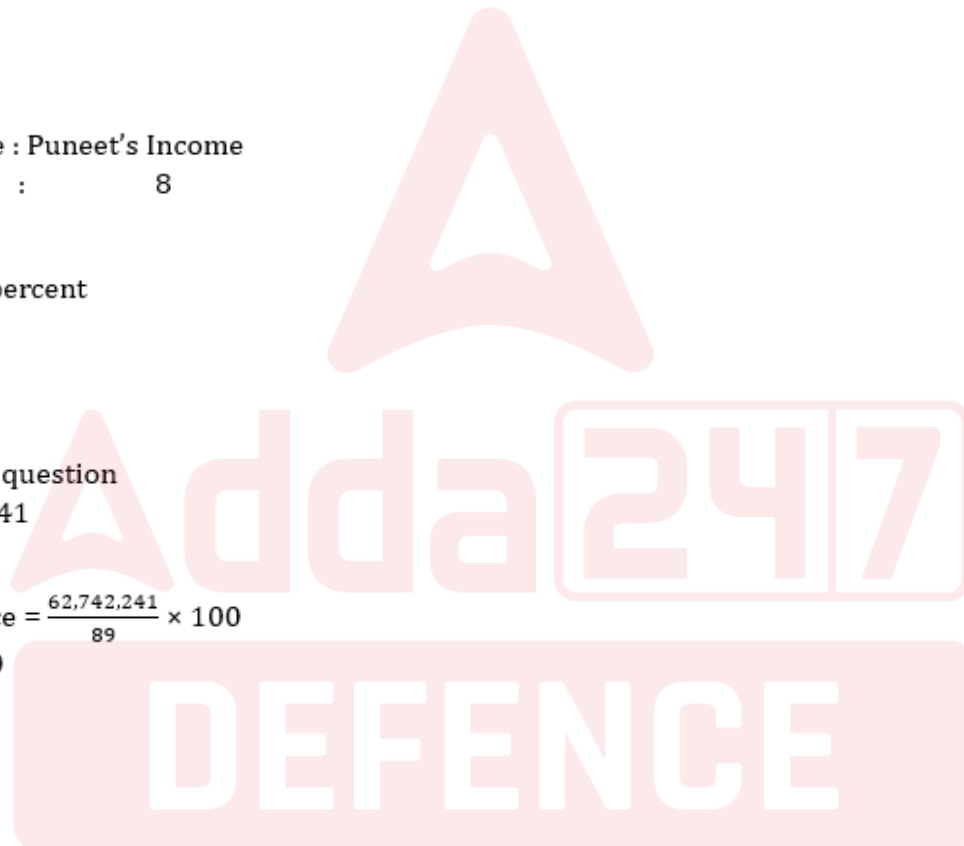
$$= \sqrt{(7)^2 + (24)^2}$$

$$l = 25$$

Curved Surface Area of the cone =  $\pi r l$

$$= \frac{22}{7} \times 7 \times 25$$

$$= 550 \text{ cm}^2$$



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**S76. Ans.(a)**

**Sol.** Uttar Pradesh state bird is Sarus Crane.

Delhi state bird is House Sparrow.

**S77. Ans.(c)**

**Sol.**

RAJAN

↓

$$= (\text{Sum of Position Value}) + (\text{Number of digits})^2$$

$$= (18 + 1 + 10 + 1 + 14) + (5)^2$$

$$= 69$$

$$\text{ARUN} = (1 + 18 + 21 + 14) + (4)^2$$

$$= 70$$

Similarly,

$$\text{ABHISHEK} = (1 + 2 + 8 + 9 + 19 + 8 + 5 + 11) + (8)^2$$

$$= 127$$

**S78. Ans.(d)**

**Sol.**

$$\Rightarrow 60 \text{ A } 15 \text{ A } 3 \text{ A } 16 \text{ A } 7 \text{ A } 21$$

$$\Rightarrow 60 \div 15 \times 3 + 16 - 7 = 21$$

$$\Rightarrow 12 + 9 = 21$$

$$\Rightarrow 21 = 21$$

$$\text{LHS} = \text{RHS}$$

**S79. Ans.(a)**

**Sol.**

<u>These</u>	<u>birds</u>	<u>eat</u>	<u>inseeds</u>
↓ Number of letter	↓ Number of letter	↓ Number of letter	↓ Number of letter
5	5	3	7

Similarly,

<u>Wishing</u>	<u>everyone</u>	<u>happy</u>	<u>Deepawali</u>
↓ Number of letter	↓ Number of letter	↓ Number of letter	↓ Number of letter
7	8	5	9

**S80. Ans.(b)**

**Sol.**  $64 - 8 \times 2 + 63 \div 49$

After interchange the signs

$$= 64 \div 8 \times 2 + 63 - 49$$

$$= 8 \times 2 + 14$$

$$= 30 \text{ R.H.S}$$

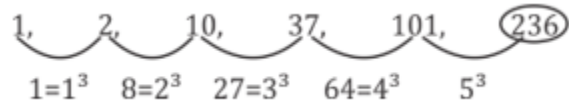
S81. Ans.(b)

Sol.



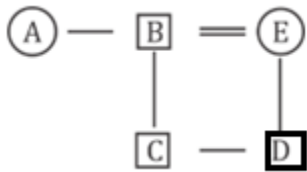
S82. Ans.(a)

Sol.



S83. Ans.(d)

Sol.



A is the husband's sister of E.

S84. Ans.(b)

Sol.  $8 = (8 + 1)^3 = 729$

$15 = (15 + 1)^3 = 4096$

Similarly,

$12 = (12 + 1)^3 = 2,197$

S85. Ans.(b)

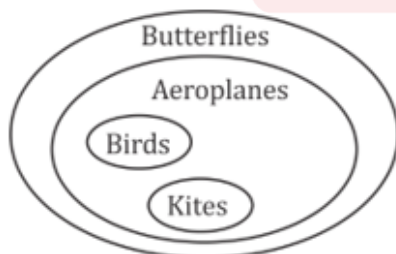
Sol.  $5 = (5)^3 - (4)^3 = 61$

Similarly,

$6 = (6)^3 - (5)^3 = 91$

S86. Ans.(c)

Sol.



- I. ✓
- II. ✓
- III. ✓

S87. Ans.(b)

S88. Ans.(a)

S89. Ans.(a)

S90. Ans.(c)

Sol. Outer circle decreased by ACW direction.

S91. Ans.(a)

Sol. All except commander are ranks of army.

S92. Ans.(b)

Sol. All except Quran are religious epics of Hindus.

S93. Ans.(c)

S94. Ans.(c)

S95. Ans.(b)

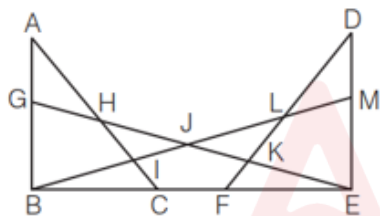
S96. Ans.(b)

S97. Ans.(a)

S98. Ans.(d)

S99. Ans.(c)

Sol.



Number of triangles,

- |                     |                     |                     |
|---------------------|---------------------|---------------------|
| 1. $\triangle AGH$  | 2. $\triangle BIC$  | 3. $\triangle HIJ$  |
| 4. $\triangle JKL$  | 5. $\triangle EFK$  | 6. $\triangle DLM$  |
| 7. $\triangle BGJ$  | 8. $\triangle EMJ$  | 9. $\triangle DKE$  |
| 10. $\triangle ABE$ | 11. $\triangle ABC$ | 12. $\triangle DEF$ |
| 13. $\triangle BME$ | 14. $\triangle BEG$ | 15. $\triangle BLF$ |
| 16. $\triangle EHC$ | 17. $\triangle BJE$ |                     |

S100. Ans.(c)

Sol.

Let the present age of P = x yr

$\therefore$  Present age of R =  $\frac{9}{11}x$  yr

According to the question,

After 7 yr,

$$(x + 7) + \left(\frac{9x}{11} + 7\right) = 114$$

$$\Rightarrow x + \frac{9x}{11} = 114 - 14$$

$$\Rightarrow \frac{20x}{11} = 100$$

$$\therefore x = \frac{100 \times 11}{20} = \frac{1100}{20} = 55 \text{ yr}$$

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