Syllabus for written test to the post of Junior Engineer (Trainee-Mechanical) Chhattisgarh State Power Company Limited

Section -A -20 marks - (20 multiple choice type questions of each 1 mark)

General Knowledge

- Current events National & International
- Constitution of India, Political system and Indian Administrative system
- Knowledge of Chhattisgarh, geographical location, natural resources, industries, education, administrative structure, history & culture of Chhattisgarh, ancient history, freedom struggle, major archaeological tourist centers of the state.

2. Reasoning and arithmetic

- Coding Decoding
- Number series
- Non-verbal series
- Directions
- Decision making
- Alphabet series
- Clocks & calendars
- Number ranking
- Cube & dice
- Mirror images
- Blood relations
- Arithmetical reasoning
- Embedded figures
- Arithmetic multiplication, division, addition, subtraction etc.

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Section –B-80 marks - (80 multiple choice type questions of each 1 mark)

(1) Applied Mechanics

- Work, power and Energy.
 Definition, form of energy, Conservation of power energy, power of engine and pumps, relation between heat and Mech. works.
- Simple lifting machines
 Law of Machine, study of machine, wheel axle, pulley jacks worm
 and worm wheel.
- Transmission of power.
 Transmission of power through belt, rope and gear, gear train, spur helical lever gears.

(2) Strength of Material

- Simple stress & strain Introduction, type of stress and strain etc.
- Mechanical properties & testing of materials, Definition, necessity of testing, type of test etc.

(3) Thermal Engineering

- Basic concept of thermo dynamics 1st and 2nd law of thermo dynamics.
- Internal combustion engines (Introduction function of two strokes, four strokes, efficiency, Mech. Efficiency, Lubrication of I.C. Engine
- Air compressor, classification and its application.
- Heat Transfer-Modes of Heat Transfer and its application.
- (4) Theory of Machines Introduction of theory of machine, velocity acceleration and friction, fly wheel, and crank efforts, power transmission gears and gear train, Governor. Cam and followers etc. Lathe, Boring, Milling, Machines, Grinding & finishing process, jigs & Fixtures, machine tools etc.
- (5) Fluid Mechanic and Hydraulics
 - Fundamental of fluid flow and pressure and its measurements. Basic equation of fluid flow
 - Pumps Types of pumps and selection of pumps.

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(6) General Mechanical

- Introduction
- Air Refrigeration Cycles
- Vapour Compression Cycles
- Vapour Absorption System
- Refrigerant
- Vapour Compression System Components
- Air Conditioning & Psychometric Processes
- Cooling Load Calculation
- Air Distribution Systems
- Air Conditioning Systems
- Fundamentals of Estimating
- Estimation of Material Cost
- Introduction (Vehicle Layouts and Types)
- Automobile Engines (Power Plant)
- Fuel Systems for Petrol Engine
- Fuel System for Diesel Engine
- Auto-Electric System
- Transmission & Propeller Shaft
- Final Drive & Rear Axle
- Steering & Front Axle
- Brakes
- Suspension Systems
- Wheel and Tyres
- Automobiles emissions and its Control

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