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3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
 - (8) Use of steam tables, logarithmic, Mollier's chart is permitted.

Marks

1. Attempt any FIVE:

5 × 2 = 10

- (a) State any two limitations of diesel power plant.
- (b) Name any two types of FBC boiler.
- (c) State any four components of Gas Turbine Power Plant.
- (d) Define term 'Trigeneration'.
- (e) List the different types of Nuclear Fuels.
- (f) Define term 'Capacity Factor'.
- (g) Name any four types of Power Plant.

2. Attempt any THREE :

3 × 4 = 12

- (a) Compare the Hydro-electric power plant and Diesel power plant.
- (b) Explain with neat sketch construction and working of 'Benson Boiler'.
- (c) Draw a layout of 'Steam Power Plant'.
- (d) Explain Waste Heat Recovery System with neat sketch.



- 3. Attempt any THREE :** **3 × 4 = 12**
- (a) List and explain components of Diesel Power Plant.
 - (b) Explain with neat sketch close cycle with constant pressure 'Gas Turbine Power Plant'.
 - (c) Explain with neat sketch the working principle of co-generation.
 - (d) Draw general arrangement of Nuclear Power Plant.
- 4. Attempt any THREE :** **3 × 4 = 12**
- (a) State the merits and demerits of 'Hydro-electric Power Plant'.
 - (b) Name any four Nuclear Power Plant situated in India with their capacity.
 - (c) What are the factors affecting choice of Power Plant ?
 - (d) Draw a layout of 'Hydro-electric Power Plant'.
 - (e) Estimate production cost of electrical energy of Power plants.
- 5. Attempt any TWO :** **2 × 6 = 12**
- (a) Draw a neat sketch of 'LA-MONT Boiler'. Explain it's construction and working in detail.
 - (b) Explain fuel handling systems in 'Steam Power Plant'.
 - (c) Explain with neat sketch the construction and working of 'PWR' Nuclear Plant. State it's advantages.
- 6. Attempt any TWO :** **2 × 6 = 12**
- (a) Explain 'Indian Boiler Regulation Act' (IBR).
 - (b) State the advantages, disadvantages and applications of 'Gas Turbine Power Plant'.
 - (c) The peak load on power station is 40 MW. The loads having maximum demands of 18; 12; 8 and 9 MW are connected to power station. The capacity of power station is 50 MW and annual load factor is 60%.
Find :
 - (i) Average load on the power station
 - (ii) Energy supplied per year
 - (iii) Demand factor
 - (iv) Diversity factor
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