

22566

21222

3 Hours / 70 Marks

Seat No.

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15 minutes extra for each hour

- Instructions :**
- (1) All Questions are *compulsory*.
  - (2) Illustrate your answers with neat sketches wherever necessary.
  - (3) Figures to the right indicate full marks.
  - (4) Assume suitable data, if necessary.
  - (5) Use of Non-programmable Electronic Pocket Calculator is permissible.

**Marks**

1. Attempt any FIVE of the following :

10

- (a) State the types of Power Plants.
- (b) State the principle of FBC.
- (c) State the different fuel handling system in steam power plants.
- (d) State the need of Waste Heat recovery in Thermal Power Plants.
- (e) State classification of Nuclear Power Plants.
- (f) Define any two performance parameters considered in Power Plants.
- (g) State any four drawbacks of Thermal Power Plant.

2. Attempt any THREE of the following :

12

- (a) Explain with neat sketch general layout of hydro-electric power plant.
- (b) Explain construction & working of Benson Boiler.
- (c) Explain with neat sketch Gas Turbine Power Plant.
- (d) State the present practices in Cogeneration.

- 3. Attempt any THREE of the following :** **12**
- (a) Discuss in brief, the maintenance of Diesel Power Plant.
  - (b) Explain Control System of Power Plant.
  - (c) Explain the term 'Trigeneration'.
  - (d) Compare between Boiler Water Reactor (BWR) & Pressurized Water Reactor (PWR).
- 4. Attempt any THREE of the following :** **12**
- (a) Discuss in brief, the Demand & Supply of Energy.
  - (b) Enlist advantages and disadvantages of Nuclear Power Plants.
  - (c) State the factors affecting choice of Power Plant.
  - (d) The Thermal Power Plant consist of two 60 MW units, each running at 8000 hours and one 30 MW units runs at 4000 hours per year. Energy produced by the plant is  $850 \times 10^6$  kWh per year. Find plant load factors and plant use factor.
  - (e) Give advantages & limitation of Hydro-electric Power Plant.
- 5. Attempt any TWO of the following :** **12**
- (a) Explain the maintenance procedure of major components of High Pressure Boilers.
  - (b) State various methods of improve thermal efficiency of Gas Turbine Power Plant. Explain any one with neat sketch.
  - (c) State different types of nuclear reactors. Explain the working of Boiler Water Reactor with neat sketch.
- 6. Attempt any TWO of the following :** **12**
- (a) Explain the IBR Act. State the different provisions in it.
  - (b) Explain with neat sketch layout of Typical Fuel Handling System used in Thermal Power Plant.
  - (c) Give estimation of production cost of electrical energy in different types of Power Plants.
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