22566

23242

3 Hours / 70 Marks Seat No. | | | | | | | | |

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.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE : **5 × 2 = 10**

(a) Define power plant.

(b) Name any two high pressure boiler.

(c) Mention the steps involved in coal handling.

(d) Define "Waste Heat Recovery".

(e) List any four points considered in site selection for Nuclear power plant.

(f) Define Demand and load factor.

(g) Give any four advantages of Diesel Power Plant.

2. Attempt any THREE : **3 × 4 = 12**

(a) State single line function of any four components used in hydro electric power plant.

(b) Explain with labelled diagram, working of Benson Boiler.

(c) Draw labelled diagram of closed cycle gas turbine with Heat Exchanger.

(d) Compare Co-generation & Trigeneration (any four points).

3. Attempt any THREE : **3 × 4 = 12**

(a) Mention the factors selection of site for hydro electric power plant.

(b) Explain with neat sketch working principle of electrostatic precipitator.

(c) Mention any four sources of waste heat.

(d) Give classification of Nuclear Reactor.

4. Attempt any THREE : **3 × 4 = 12**

(a) Mention the classification of power plants.

(b) Give advantages & disadvantages of nuclear power plant.

(c) What are the factors affecting on choice of power plant ?

(d) Explain the concept of water hammer effect.

(e) The peak load on power station is 35 MW. The load having maximum demands of 15, 10, 5 and 7 MW are connected to power station. The capacity of power station is 40 MW. The annual load factor is 50%.
Find (i) Average load (ii) Energy supplied (iii) Demand factor (iv) Diversity factor.

5. Attempt any TWO : **2 × 6 = 12**

(a) Explain with suitable sketch bubbling in fluidized bed combustion.

(b) Explain maintenance procedure for different component of gas turbine power plant.

(c) Explain with sketch general arrangement of Nuclear Power Plant.

6. Attempt any TWO : **2 × 6 = 12**

(a) Explain fuel feeding and Air Distribution System in Fluidized Bed Combustion Boilers.

(b) Give details of Belt conveyer. Mention advantages & disadvantages.

(c) Calculate the cost of power generation per kWh for power station having following data :

(i) Installed capacity of plant = 200 MW

(ii) Capital cost = 400 Cr.

(iii) Rate of Interest & Depreciation = 12%

(iv) Annual cost of fuel, salaries and taxation = 5 crores

(v) Load factor = 50%
