



17324

11819

3 Hours / 100 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**.*

Marks

1. Solve **any ten** of the following.

20

- a) State the importance of electrical power in day to day life. (any two points)
- b) State the function of super heater of a thermal power plant.
- c) State advantages of Pulverised coal w.r.t. thermal power plant.
- d) Name the turbines used in HPS. For the heads 30 M and less and 200 M and above.
- e) State any four locations of Hydro power plants in India with their capacities.
- f) What is meant by nuclear Fission ?
- g) List out main components of Reactors.
- h) List out main components of Diesel power station.
- i) State two advantages of interconnection of power stations.
- j) Define base load and peak load.
- k) State any two fuels used in NPS with their mass numbers and atomic numbers.
- l) State any four applications of Diesel power station.

2. Solve **any four** of the following.

16

- a) State the different methods of Power Generation adopted in India.
- b) “Efficiency of thermal power station is low”. – Justify.
- c) Draw and explain the function of cooling tower in TPS.
- d) What are the main electrical equipment used in HPS ? State the function of each parts of it in brief.
- e) Draw the schematic block diagram of Thermal Power Station.
- f) Draw a neat labelled layout of thermal power station.

P.T.O.



3. Solve **any four** of the following.

- a) Explain the working of pump storage plant and also state its advantages.
- b) State disadvantages of nuclear power station.
- c) Draw the block diagram of a diesel power plant and show all its important parts.
- d) State four special features of a turbo alternator used in TPS.
- e) State the effect of Water hammering effect in penstock of HPS and method to reduce it.
- f) Explain the procedure adopted for the disposal of Nuclear Waste.

4. Solve **any four** of the following.

16

- a) Explain the working of Hydro power station with schematic layout.
- b) State elements of diesel electric power plant with their functions.
- c) A generating station has a connected load of 43 kW and M.D. of 20 MW. The energy 61.5×10^6 KWH per year. Calculate Demand Factor and Yearly load factor.
- d) Classify condensers used in thermal power station. Explain each type in brief.
- e) What is meant by captive power generation also state its advantages.
- f) State the various factors governing selection of site for TPS.

5. Solve **any four** of the following.

16

- a) State the function of biological shielding in case of Nuclear Reactor and give material used for it.
- b) What are the basic requirements of locating wind power plant ?
- c) Explain the characteristics of solar cell.
- d) Compare the Nuclear power station with Hydro power station.
- e) Explain with neat diagram construction of pelton wheel turbine.
- f) Give comparison of BWR and PWR.

6. Solve **any four** of the following.

16

- a) State the types of solar collector and explain any one.
 - b) State, "how priority of use is decided w.r.t. type of power plant".
 - c) Explain with neat diagram the working of photo-voltaic cell.
 - d) Explain multiplication factor and critical size w.r.t. NPS.
 - e) Draw and explain integrated duration curve used in system operation.
 - f) Why solar system is preferred now a days ? Justify your answer.
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