

22327

22232

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.

Marks

1. Attempt any FIVE of the following :

10

- (a) State any two advantages of thermal power plant.
- (b) List any two hydro power plants in Maharashtra state with their capacity.
- (c) State four main constituents of hydro electric power station.
- (d) List the applications of flat plate solar air collector.
- (e) State the different types of material used for the solar photovoltaics.
- (f) State the classification of wind turbine power plant.
- (g) Define maximum demand and demand factor.

2. Attempt any THREE of the following :

12

- (a) State the factors governing the selection of site for thermal power plant.
- (b) Explain the working of hydro power station with schematic layout.
- (c) Draw the neat labelled diagram of wind mill and state its application.
- (d) Explain how load curve help in selection of size and number of generating units in given load curve and operation schedule.



3. Attempt any THREE of the following : 12
- (a) Draw a neat labelled block diagram of gas turbine station.
 - (b) Explain the following terms in connection with hydroelectric power station.
 - (i) Tunnel
 - (ii) Surge tank
 - (iii) Spill ways
 - (iv) Tail race
 - (c) Explain with neat diagram the working and material used in photovoltaic cell.
 - (d) State any four advantages of wind energy system.
4. Attempt any THREE of the following : 12
- (a) Draw a neat constructional diagram of a nuclear reactor. Label it. State the function of moderator and control rods.
 - (b) Draw schematic diagram of solar power plant and how electricity is generated.
 - (c) Give comparison between horizontal axis wind turbine and vertical axis wind turbine.
 - (d) Draw and explain load duration curve used in power system operation.
 - (e) Describe the merits of interconnected power system.
5. Attempt any TWO of the following : 12
- (a) Elaborate the function of different parts of thermal power plant with neat sketch.
 - (b) State the classification of hydro-power plant according to quantity of water available, describe in brief.
 - (c) Describe with schematic layout for biochemical based power plant.
6. Attempt any TWO of the following : 12
- (a) State the types of turbine used in hydro power station. Describe working of any one.
 - (b) State any two types of solar collector with their particular application.
 - (c) Find out the average load and maximum demand of supply system having following loads :

Types of Load	M.D. (kW)	Load Factor	Diversity Factor
Residential	1000	20	1.2
Commercial	2000	25	1.1
Industrial	10000	80	1.25

Assume overall diversity factor = 1.3 & load factor = 0.5
