

22327

23124

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.

- |  | <b>Marks</b> |
|--|--------------|
| <b>1. Attempt any FIVE of the following :</b>  | <b>10</b>    |
| (a) State any four factor governing selection of site for thermal power station.         |              |
| (b) Give four constituents of hydro-electric power plant.                                |              |
| (c) Classify the hydro-electric water turbines used in hydro-electric plants.            |              |
| (d) List the types of concentrated solar power system.                                   |              |
| (e) State the applications and material used for photo voltaic cell.                     |              |
| (f) State the various types of wind turbines used on the basis of position of rotor.     |              |
| (g) Define connected load and spinning reserves.   |              |
| <b>2. Attempt any THREE of the following :</b>   | <b>12</b>    |
| (a) State the advantages of thermal power plant.   |              |
| (b) Explain the factor governing for site selection of hydro power station.              |              |
| (c) Explain the basic components of wind energy conversion system.                       |              |
| (d) Explain load curve and load duration curve with neat diagram.                        |              |
| <b>3. Attempt any THREE of the following :</b>   | <b>12</b>    |
| (a) Explain boiler water reactor (BWR) with neat diagram.                                |              |
| (b) State the salient features of electric generators used in large hydro power station. |              |
| (c) State the applications of flat plate collector and material used for it.             |              |
| (d) Differentiate between horizontal axis and vertical axis wind turbine.                |              |



**4. Attempt any THREE of the following : 12**

- (a) Describe the purpose of the following components of nuclear power station :
- (i) Control rod (ii) Moderator  
(iii) Reactor vessel (iv) Reflectors
- (b) Compare flat plate collector with concentrating type solar collector.
- (c) Explain with block diagram the working of wound rotor induction generator.
- (d) Describe the meanings of :
- (i) Average demand (ii) Diversity factor  
(iii) Demand factor (iv) Load factor
- (e) Compare thermal power plant with nuclear power plant on the basis of :
- (i) running cost (ii) initial cost  
(iii) starting period (iv) site

**5. Attempt any TWO of the following : 12**

- (a) Elaborate the function of different parts of a typical thermal power plant with neat sketch.
- (b) State the classifications of hydro power plants and describe working of any one.
- (c) State the types of solar collector and describe with neat sketch any one of them.

**6. Attempt any TWO of the following : 12**

- (a) Describe the function of the following components of hydro power plant :
- (i) Surge tank (ii) Water turbine  
(iii) Spillways (iv) Electric generator  
(v) Water turbine (vi) Catchment area
- (b) Draw schematic layout of electricity generation by using biomass, explain it in brief.
- (c) A residential load of a locality is given below :

Time in Hrs.	0 – 5	5 – 6	6 – 9	9 – 18	8 – 21	21 – 24
Load kW	3	7	20	0	12	8

Draw the load curve and find

- (i) Maximum Demand (ii) Energy consumed in during 24 hrs.  
(iii) Load factor (iv) Average load
-