



22327

12223

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.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks**1. Attempt any FIVE of the following :****10**

- (a) Write the types of Nuclear Reactor, at least four names, used in NPP.
- (b) State any four names, which are used as a safety provision in hydro power plants.
- (c) Enlist any four names of hydro power plants in Maharashtra.
- (d) State different types of solar reflectors/collectors used in solar thermal PP.
- (e) State two advantages of HAWT.
- (f) Define (i) Spinning reserve, (ii) Hot reserve.
- (g) Draw the constructional figure of solar photovoltaic cells.



2. Attempt any THREE of the following : 12

- (a) Draw a block diagram of gas turbine power plant (open cycle) Name each block.
- (b) Give classification of hydro power plant.
- (c) Draw the block diagram of wind energy plant.
- (d) A 100 MW power station delivers 100 MW for two hrs., 70 MW for 8 hrs., 50 MW for 7 hrs. and is shutdown for the rest of the day. It is also shut down for 30 days each year. Calculate its annual load factor.

3. Attempt any THREE of the following : 12

- (a) Distinguish between thermal power station and Nuclear power station on the basis of initial cost, running cost, cleanliness and space required.
- (b) Which water turbine should be selected for a water head of 300 M ? Draw its labelled sketch.
- (c) Draw a neat labelled diagram of Biogas (Gobar gas) power plant.
- (d) Compare HAWT and VAWT on any four points.

4. Attempt any THREE of the following : 12

- (a) Draw a layout of diesel power plant.
- (b) State properties of good fuel used in Thermal Power Plant.
- (c) Draw layout of Direct Drive Wind Power Plant.

(d) Define following terms :

- (1) Connected load
- (2) Firm power
- (3) Maximum demand
- (4) Load factor

(e) The load generating station charges as recorded in the following table during 24 hours of a day :

Time (Hours)	0-6	6-10	10-16	16-20	20-24
Load (MW)	40	60	70	80	60

Draw the daily load curve and load duration curve.

5. Attempt any TWO of the following :

12

- (a) Define fusion and fission.
- (b) Compare impulse and reaction turbines used for hydro power plants.
- (c) State any four advantages of Gas Power Plant.

6. Attempt any TWO of the following :

12

- (a) "Running and maintenance costs of thermal power station are more than hydro power stations" Justify the answer.
- (b) What are various types of Reflections used in Solar Power Plant ?
- (c) Define National-grid and state connected grid. Write the four advantages of inter connections of grids system.

