23242
3 Hours / 70 Marks

Seat No. | | | | | | | | |

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 questions : **10**

(a) List out any two thermal power stations in India with capacity.

(b) List out turbines used in hydro power plant on the basis of water head.

(c) Classify hydro power plant on the basis of load and head available.

(d) State any two disadvantages of Hydro power plant.

(e) Why concentrating collectors are used in solar power plant ?

(f) Define the term :

(i) Pitch angle

(ii) Tip speed ratio

(g) List any two causes of fault on grid system.

2. Attempt any THREE question : **12**

(a) Explain the function of different parts of a typical Nuclear power plant with neat sketch.

(b) With a neat diagram explain medium head hydro-electric power plant.

(c) Draw a general sketch of horizontal axis wind power plant and explain the function of each component.

(d) Define :

(i) Black out

(ii) Cold reserve

(iii) Hot reserves

(iv) Spinning reserve of a power system

3. Attempt any THREE questions : **12**

(a) Draw a neat sketch of PWR pressurized water reactor and explain in brief.

(b) Describe any four safe practices to be followed with respect to hydro power plant.

(c) Draw a detailed layout of a thermo-chemical based power plant.

(d) Explain Squirrel Cage Induction Generator (SCIG) and also draw a diagram.

4. Attempt any THREE questions : **12**

(a) Draw a neat layout of diesel power station and label it.

(b) With neat diagram, explain working of solar power tower.

(c) Draw the block diagram of doubly fed induction generator wind power plant and explain its working.

(d) A generating station has the following daily load cycle :

Time (hour)	0 – 6	6 – 10	10 – 12	12 – 16	16 – 20	20 – 24
Load (MW)	60	70	80	90	50	40

Derive the load curve and find :

(i) Maximum demand

(ii) Unit generated per day

(iii) Average load

(iv) Load factor

(e) A generating station has following daily load cycle :

Time (hour)	0 – 6	6 – 12	12 – 16	16 – 20	20 – 24
Load (MW)	30	50	60	70	50

Draw the load curve and find :

(i) Maximum demand

(ii) Unit generated per day

(iii) Average load

(iv) Load factor

5. Attempt any TWO : **12**

(a) State various causes for less efficiency in thermal power plant.

(b) With neat diagram, explain the working of Pelton wheel turbine.

(c) Explain working of grid connected solar photovoltaic power plant with a neat diagram.

6. Attempt any TWO : **12**

(a) Explain the working of pump storage power plant with diagram.

(b) Draw and explain the working of fixed dome type biogas power plant.

(c) Describe importance of load curve and load duration curve.
