Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(ME) (E-I 2012 Onwards) (Sem.–6)

POWER PLANT ENGINEERING

Subject Code : DE/ME-1.8

M.Code : 71250

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Answer briefly :

a. What are commercial and non - commercial sources of energy?

b. What do you understand by peak load plants?

c. What is difference between closed and open gas cycle?

d. What are direct energy conversion systems? Enlist few of them.

e. What are load curves?

f. Draw the general layout of thermal power plant.

g. What is Fluidized bed combustion system?

h. Define fuel cell.

i. What is the application of radiation shields?

j. What are the main components of diesel electric plant?

SECTION-B

2. Explain various fuel firing systems.

3. The annual peak load on a 30 MW power station is 25MW. The power station supplied loads having maximum demands of 10MW, 9MW, 5MW and 6 MW. The annual load factor is 45%.Find:

   a) Average load

   b) Diversity factor

   c) Energy supplied by the year

   d) Demand factor

4. Compare gas turbine power plants with steam turbine and diesel power plants.

5. A run off river hydroelectric plant with an effective head of 25m and plant efficiency of 80% supplies power to a variable load as given below :

Time (hrs)	Load × 10^3 kW	Time (hrs)	Load × 10^3 *kW*
0-2	11.4	12-14	44.2
2-4	5.6	14-16	44.4
4-6	25.6	16-18	74.2
6-8	53.2	18-20	37.8
8-10	44.8	20-22	30.0
10-12	39.4	22-24	18.0

   Draw the load duration curve and find average load and plant load factor.

6. Explain with diagram different systems of ash disposal.

SECTION-C

7. Draw a neat diagram of Breeder reactor; describe it in brief with its advantages and disadvantages. Why the moderator is not required in these reactors?

8. What is a solar collector? How many solar collectors are presently in use? How power is generated from solar energy? Describe the methods in detail with sketches.

9. Write short notes on :

   a) Magneto-hydrodynamic system

   b) Pneumatic conveyer system

   c) Photovoltaic power system

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.