

[Total No. of Questions - 9] [Total No. of Printed Pages - 3]  
(2125)

15144

**B. Tech 5th Semester Examination**  
**Electrical Power Generation (OS)**

EE-5001

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

**Note :** Attempt five questions in all selecting one question from each section A, B, C, D and Section E is compulsory.

**SECTION - A**

- (a) The maximum demand of power is 80MW, the capacity factor is 0.6 and the utilization factor is 0.9. Find (i) load factor (ii) plant capacity (iii) reserve capacity (iv) annual energy production. (3×4=12)
  - (b) Define diversity factor and energy load curve. (8)
- The load on a power plant on a certain day is as under.

Time	Load (MW)
12-5 AM	20
5-9 AM	40
9-6 PM	80
6-10 PM	100
10PM - 12	20

Plot the chronological load curve and load duration curve. Find the load factor of the plant and the energy supplied by the plant in 24 hours. (20)

[P.T.O.]

2

15144

**SECTION - B**

- What is the principle of nuclear generation? Explain in detail the power generation by nuclear power plant with neat diagram. (4+16=20)
- (a) With the help of a simple diagram, explain the essential features of hydro-power plant. (10)
- (b) Discuss the important factors to be taken into account while selecting the site for thermal plant. (10)

**SECTION - C**

- (a) What is the function of a condenser in a steam power plant? Describe with neat diagram any one type of condenser commonly used in power plants. (10)
  - (b) Compare base-load and peak load in a power station. (10)
- Write short notes:
    - Supply to power station auxiliaries.
    - Fire fighting equipment. (10×2=20)

**SECTION - D**

- (a) Discuss the importance of proper load allocation in power plant. What information must be available for optimum load allocation? (6+6=12)
  - (b) Explain why the fuel cost is taken as the operating cost in economic scheduling? (8)
- (a) How can the effect of transmission loss be included in optimum scheduling in power plants? (11)
  - (b) Define input-output characteristic, heat rate and incremental cost. (3×3=9)

**SECTION - E**

9. Answer in short.

- (i) How is incremental cost calculated?
- (ii) How do stability consideration affect the plant capacity to be operated?
- (iii) Define mass defect and binding energy.
- (iv) Name some moderator material.
- (v) Why are hydro plants more reliable?
- (vi) How are hydro-turbines classified?
- (vii) Name some of the categories of heat losses in a thermal plant.
- (viii) How does diversity factor influence the cost of generation?
- (ix) What are the reasons of power crisis in India?
- (x) How the maintenance of station batteries is done?

(2×10=20)