Exam.Code:0937
Sub. Code: 33793

2124

B.E. (Electrical and Electronics Engineering)

Seventh Semester

EE-709: Electrical Power Generation

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit. All questions carry 10 marks.

x-x-x

1. Answer the following:-
   (i) What is Grid Code?
   (ii) What is the difference between capacity factor and utilisation factor?
   (iii) Define load factor. Discuss its importance.
   (iv) What is spot pricing? What is its importance.
   (v) How can most economic power factor be calculated?
   (vi) What is spinning reserve?
   (vii) The size of power plant units has been continuously increasing for the past many years. Why?
   (viii) Why is off peak energy utilization important?
   (ix) What is the meaning of basic rule curve?
   (x) What is meant by incremental water rate?

UNIT -I

2. Discuss why ?
   (a) maximum demand of a group of consumers is always less than the sum of their individual maximum demands.
   (b) Even if the maximum demand and load factors of two systems are equal, their load duration curves may not be similar.
   (c) Utilisation factor of a plant may be more than 1.

3. The load curve of an electrical system is linear with the following values at different times:

Time	12	2	5	8	5	6	9	12
Load MW	20	10	10	50	50	100	100	20

   (a) Plot chronological load curve and load duration curve for the system.
   (b) Plot energy load curve and mass curve.
   (c) Find load factor of the system.
   (d) Find capacity factor and utilisation factor if the station capacity is 125 MW.

P.T.O.

4. An industrial consumer has a load of 250 kW at a power factor of 0.8 for 8 hours a day and 300 days per year. Calculate his annual payment under each of following tariffs, (a) Rs. 2000 per kVA of maximum demand per year + Rs. 2.0 per kWh (b) a flat rate of Rs. 3.0 per kWh.

UNIT -II

5. A steam plant having an installed capacity of 200 MW is to be set up. The investment on the plant is Rs. 29000 per kW of installed capacity. The useful life of plant may be taken as 20 years and salvage value of plant is 25% of initial cost. Find the annual depreciation reserve by (a) straight line method (b) sinking fund method if interest rate is 7%.

6. (a) Discuss the factors which tend to limit the size of units in steam plants.
   (b) Distinguish between operating reserve and spinning reserve.

7. (a) Discuss the method to determine the capacity of the run off river plant and steam plant when they supply a given load jointly.
   (b) Why is it necessary to operate hydro and steam plants in combination? Discuss.

x-x-x