Exam.Code:0938
Sub. Code: 6692

2054

B.E. (Electrical and Electronics Engineering)

Eighth Semester

OE-EE-803: 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.

x-x-x

I. Attempt the following:-

a) Discuss the organization of power sector in India.

b) State the importance of load duration curve.

c) What are the criteria for selection of site for hydroelectric power plant?

d) How is straight line depreciation different from sinking fund depreciation?

e) What advantages accure from operating a hydro and a thermal plant in co-ordination? (5x2)

UNIT - I

II. a) Draw single line diagram of thermal and hydro power plant.

b) Discuss the importance of diversity of loads in a power system. How is the load factor of a sub-station affected by increase in diversity of loads? (2x5)

III. A load on a power plant on a typical day is as:-

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

Plot the chronological load curve and load duration curve. Find the load factor of the plant and energy supplied by plant in 24 hours. (10)

IV. How do demand factor, load factor and diversity factor in a power system affect the fixation of tariffs. Two tariffs are offered (i) Rs. 4000 per month + Rs. 1.0 per kwh (ii) A flat rate of Rs. 4.0 per kwh. At what consumption is tariff (i) preferable? (10)

P.T.O.

UNIT - II

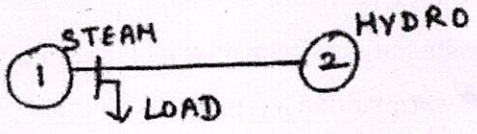
V. a) What do you mean by depreciation reserve? Why is it necessary to maintain it? Discuss the methods to calculate the depreciation charges.

b) The annual fixed and operating costs of a 300 Hw hydro station are Rs. 3000 per kW of installed capacity per annum and Rs. 1.25 per kWh respectively. Plot the variation of unit cost of energy with load factor. (2x5)

VI. a) Discuss the method to determine the capacity of the run-off river plants and steam plant when they supply a given load jointly.

b) State the factors governing the selection of site for thermal power plants. (2x5)

VII. A two plant system having a steam plant near load centre and a hydro plant at a remote location as shown in figure.



The load is 700 HW for 14 hours a day and 500 HW for 10 hours a day. The characteristics of units are:-

$C_1 = (24 + 0.02P_1)P_1$ Rs/hour

$W_2 = (6+0.0025P_2)P_2$ m^3/sec

Loss coefficient $B_{22} = 0.0005$

Find the generation schedule, daily water used by hydro plant and daily operating cost of thermal plant for $r_2 = 2.5$ Rs. per hour/m^3 per sec. (10)

x-x-x