PVP 12

Code: EE3T3

II B.Tech - I Semester – Regular Examinations - January 2014

ELECTRICAL POWER GENERATION

(ELECTRICAL & ELECTRONICS ENGINEERING)

Duration: 3 hours Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1 a) Explain the factors effecting the selection of site for Hydroelectric plant. 4 M

b) With the help of neat layout diagram, explain the working of the Hydroelectric Plant. 10 M

2 a) Explain the function of Super heater, Economizer and Air Preheater in the operation of Thermal Power Plant. 7 M

b) List out the comparison between Thermal Power Plant and Hydroelectric Power Plant. 7 M

3 a) With the help of neat diagram,explain the working of the Nuclear Power Plant. 7 M

b) List out the comparison between PWR, BWR and FBR. 7 M

4 a) Explain the operation of Diesel electric power plant? Also explain the essential components required in Diesel power plant? 7 M

b) Explain the methods used to increase the efficiency of the Open cycle Gas turbine Power plant? 7 M

5 a) A generating station supplied the following loads: 15000kW, 12000 kW, 8500 kW, 6000 kW and 450 kW. The station has a maximum demand of 22000 kW. The annual load factor of the station is 48 %. Calculate

i) the number of units supplied annually

ii) the diversity factor and demand factor. 9 M

b) Explain the effects of load factor and diversity factor on cost of energy generated. 5 M

6 a) Hydro-electric plant costs Rs. 300 per kW of installed capacity. The total annual charges consist of 5 % interest; depreciation at 2%, operation and maintenance at 2 % and insurance, rent etc. 1.5 %. Determine a suitable two-part tariff if the losses in transmission and distribution are 12.5 % and diversity factor of load is 1.25. Assume that maximum demand on the station is 80 % of the capacity and annual load factor is 40 %. What is the overall cost of generation per kWh? 10 M

b) What is Depreciation? What are the methods used for depreciation and explain any one briefly? 4 M

7 a) What are the equipment present in Air insulated substation? Also draw the layout of a substation? 7 M

b) What are the different types of Bus-bar arrangements used in substation? 7 M

8 a) What are the different types of Gas Insulated Substation? Explain briefly? 7 M

b) Write a brief notes on construction aspects, installation and maintenance of Gas Insulated Substation. 7 M