PVP 12

Code: EE3T3

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

ELECTRICAL POWER GENERATION
(ELECTRICAL & ELECTRONICS ENGINEERING)

Duration: 3 hours Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1 a) What are the essential elements of hydro electric power Plant. 7 M

b) A hydro electric plant has a catchment area of 120 sq.km. by available runoff is 50% with annual rainfall of 100 cm. A head of 250 meters is available on the average. Efficiency of the power plant is 70% find i) average power produced ii) Capacity of the power plant. Assume a load factor of 0.6. 7 M

2 a) Explain the modern thermal plant lay out. 7 M

b) A 65000 kW steam power station uses coal of calorific value 15000 Kcal per kg. If coal consumption per kilo watt hour is 0.5 kg and load factor of the station is 40% calculate overall efficiency and coal consumption per day. 7 M

3 Explain different types of nuclear reactors and brief description of PWR, BWR, CANDU. 14 M

4 a) Explain the advantages and disadvantages of diesel power plant. 7 M

b) Explain briefly about layout of gas turbine plant and its components. 7 M

5 a) Explain the factors of load, demand, diversity, capacity, utilization and plant use factor. 7 M

b) Give the basis for expressing the cost of electrical energy as a+b kW + c kWH and explain the factors on which a,b and c depend. 7 M

6 a) Explain load sharing between base load and peak load stations. 7 M

b) A factory has a maximum load of 240 kW at 0.8 power factor lagging with an annual consumption of 50,000 units. The tariff is Rs. 50 per kVA of maximum demand plus 10 paisa per unit. Calculate the flat rate of energy consumption. What will be the annual saving if power factor is raised to unity. 7 M

7 a) Distinguish between indoor and outdoor sub-stations 4 M

b) Mention different arrangements of bus bars with relevant diagrams 10 M

8 a) Explain briefly about single line diagram of Gas insulated substation. 7 M

b) Compare air insulated substations and gas insulated substations. 7 M