PVP 14

Code: EE4T3

II B.Tech - II Semester – Regular/Supplementary Examinations
April 2019

ELECTRICAL POWER GENERATION
(ELECTRICAL & ELECTRONICS ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks

11 x 2 = 22 M

1.

a) List any two merits and demerits of Hydro electric power stations.
b) How hydroelectric power plants are classified?
c) What information can you get from hydrograph in hydroelectric power plants?
d) What is condenser? Name the different types of condensers.
e) What are the various methods used for the disposal of ash in thermal power stations?
f) What are the properties of reactor control rods?
g) What are the renewable and non-renewable energy resources?
h) Write the importance of diversity factor and load factor?
i) Define two part tariff.
j) Sketch the sectionalized single bus bar system diagram?
k) Write any two comparisons between air insulated and gas insulated substation.

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) What are the factors considered for the selection of site for hydro-electric power plants? 8 M

b) An hydroelectric station has to operate with a mean head of 50 m. It makes use of water collected over a catchment area of 200 km^2 over which the average annual rainfall is 420cm with a 30% loss due to evaporation. Assuming the turbine efficiency as 85% and the alternator efficiency as 80%. Calculate the average power that can be generated? 8 M

3. a) Write short notes on: (i) Super heater. (ii) Economizer. 10 M

b) A steam power station spends Rs. 30 lakhs per annum for coal used in the station. The coal has a calorific value of 5000 kcal/kg and costs Rs.300 per ton. If the station has thermal efficiency of 33% and electrical efficiency of 90%, find the average load on the station. 6 M

4. a) Explain open cycle OTEC system with neat diagram. 10 M

b) Explain operation of nuclear reactor. 6 M

5. a) A power station supplies the following loads to various consumers:
Industrial load-1000 kW
Commercial load-750 kW
Domestic load-500 kW
Domestic light-500kW
If the maximum demand on the station is 2500kW and the number of kWh generated per year is 45×10^5, examine the diversity factor and annual load factor. 8 M

b) Describe the different types of tariff with necessary equations. 8 M

6. a) Explain the bus bar arrangements in the substation with relevant diagram. 8 M

b) What are the different types of gas insulated substations? 8 M