

B.Tech II Year II Semester (R15) Regular Examinations May/June 2017

ELECTRICAL POWER GENERATING SYSTEMS

(Electrical & Electronics Engineering)

Time: 3 hours

Max. Marks: 70

PART - A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- Write a short note on super heater.
 - What is the use of condenser in thermal power station?
 - What are the main parts of nuclear reactor and their functions?
 - Briefly explain hydrograph.
 - Define altitude angle.
 - What are the main factors governing the selection of site for wind turbine generating systems?
 - Write the applications and advantages of biogas.
 - Write the major disadvantages of geothermal power generating stations.
 - What is meant by two part tariff?
 - Define load curve and load duration curve.

PART - B
(Answer all five units, 5 X 10 = 50 Marks)

UNIT - I

- 2 Explain the operation of thermal power station with a neat line diagram.

OR

- 3 What are the types of steam turbines and explain with neat diagram.

UNIT - II

- 4 Explain the procedure of nuclear waste disposal mechanism in a nuclear power plant.

OR

- 5 Explain the principle of operation of nuclear reactor with neat diagram.

UNIT - III

- 6 Explain about the point focusing collection of solar power generation.

OR

- 7 (a) Discuss the salient features of horizontal axis wind turbines and vertical axis wind turbines.
(b) Discuss about wind energy potential in India and its growth scenario.

UNIT - IV

- 8 With a neat sketch, explain biomass gasification.

OR

- 9 What is plate tectonic theory and how is it related to geothermal energy.

UNIT - V

- 10 A system has a straight line annual load duration curve with maximum and minimum demands of 150 MW and 500 MW respectively. The annual cost characteristics of base load and peak load stations are respectively given by
 $C_1 = (\text{Rs } 10,00,000 + \text{Rs } 1000/\text{kW} + \text{Rs } 6/\text{kWh})$
 $C_2 = (\text{Rs } 8,00,000 + \text{Rs } 600/\text{kW} + \text{Rs } 8/\text{kWh})$
 Determine the operating schedule of peak load station for minimum annual cost. Also calculate the overall cost per kWh.

OR

- 11 Explain two part tariff and compare it with power factor tariff.