

B.Tech II Year II Semester (R13) Supplementary Examinations December/January 2015/2016

**ELECTRICAL POWER GENERATING SYSTEMS**

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

**PART – A**

(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- Draw the line diagram for coal and ash handling arrangement.
  - Differentiate between the natural and forced draught fans.
  - List the factors for the selection of site for hydro electric power plants.
  - Write the functions of moderator and control rods.
  - Write about different types of solar energy collecting systems.
  - Define pitch angle.
  - Write Economic and environmental aspects for biogas plants.
  - Define principle of tidal energy generation.
  - Define plant use factor, demand factor and load factor.
  - Write different types of tariff methods.

**PART – B**

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

**UNIT – I**

- 2 (a) Draw labeled schematic block diagram of thermal power plant showing all the systems  
(b) Explain about Economizer

**OR**

- 3 (a) Explain Superheaters and reheaters.  
(b) Write about different types of turbines used in thermal power plants

**UNIT – II**

- 4 (a) Classify hydroelectric power plants in different ways.  
(b) Explain main parts of a Nuclear reactor.

**OR**

- 5 (a) Draw schematic arrangement of a nuclear power station and explain each part.  
(b) Explain Pressurized Water Reactor.

**UNIT – III**

- 6 (a) Explain the role and potentiality of solar power in India.  
(b) Explain I-V characteristics of PV cells.

**OR**

- 7 Explain horizontal and vertical axis wind turbines with their operation and characteristics.

**UNIT – IV**

- 8 (a) Explain Bio-gas power plant with block diagram.  
(b) What is meant by anaerobic digestion? What are the factors which affect biodigestion? Explain briefly.

**OR**

- 9 (a) Explain the concept of how geothermal energy is produced.  
(b) Explain the operation of single pool modulated tidal system.

**UNIT – V**

- 10 (a) Write the procedural steps to draw the load duration curve  
(b) A generating station supplied the following loads: 175 MW, 100 MW, 80 MW, 50 MW and 4 MW. The station has a maximum demand of 225 MW. The annual load factor of the station is 45%, calculate:  
(i) The number of units supplied annually. (ii) The diversity factor. (iii) The demand factor.

**OR**

- 11 (a) Explain two part tariff and three part tariff methods.  
(b) Explain flat rate tariff and block rate tariff methods.