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10EE36

Third Semester B.E. Degree Examination, June/July 2015
Electrical Power Generation

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting
atleast TWO questions from each part.**

PART – A

- 1
 - a. Explain the working of wind energy conversion system with neat block diagram. (08 Marks)
 - b. Explain the concept of cogeneration plant and discuss its merits. (06 Marks)
 - c. With a neat block diagram, explain the working of geothermal plant. (06 Marks)

- 2
 - a. What are the points to be considered for selection site for diesel power plant? (06 Marks)
 - b. Explain gas turbine plant with a neat sketch. (08 Marks)
 - c. Explain with a diagram working of a bio generation plant. (06 Marks)

- 3
 - a. Mention the factors to be considered for selection of hydro electric plants. (06 Marks)
 - b. Classify the hydro electric plants based on :
 - i) water flow regulation
 - ii) head
 - iii) load. (04 Marks)
 - c. Describe the schematic arrangement of a thermal power plant. Briefly explain the functions of each. (10 Marks)

- 4
 - a. Explain with a neat diagram, the basic components of a nuclear power plant. (10 Marks)
 - b. Explain the operation of a fast breeder reactor. (05 Marks)
 - c. Discuss some of the safety measures incorporated in nuclear power plant. (05 Marks)

PART – B

- 5
 - a. Explain the following terms :

i) Demand factor	ii) diversity factor	iii) plant use factor
iv) plant utilization factor	v) load factor	

 (05 Marks)
 - b. Write a short note on load curve and load duration curve. (05 Marks)
 - c. A generating station supplies the following loads 15 MW, 12MW, 8.5MW, 6MW and 0.45 MW. The annual load factor of the power station is 45%. Calculate :
 - i) number of units supplied annually
 - ii) diversity factor
 - iii) Demand factor if the station has a maximum demand of 22 MW. Take connected load is 41.95 MW. (10 Marks)

- 6 a. What is meant by tariff? Mention the types of tariff. Explain any one type of tariff. (06 Marks)
b. What is power factor? Explain any one method to improve the power factor. (06 Marks)
c. Explain with a neat sketch :
i) Single bus bar with sectionalisation
ii) Double bus bar with sectionalisation. (08 Marks)
- 7 a. What is the necessity of current limiting reactors in power system? Explain with neat sketch of feeder reactor scheme. (06 Marks)
b. Discuss the necessity of neutral grounding. (06 Marks)
c. What are the different methods of neutral grounding? Explain solid grounding method. (08 Marks)
- 8 a. With a neat diagram, explain the following :
i) Voltage transformer earthing (08 Marks)
ii) Resistance earthing. (06 Marks)
b. Explain with a neat sketch the resonant earthing. (06 Marks)
c. A 33KV, 50Hz network has a capacitance to neutral of $0.1 \mu\text{F}$ per phase. Calculate the inductances of an arc – suppression coil suitable for the system to avoid arcing ground effect. (06 Marks)

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