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Third Semester B.E. Degree Examination, June/July 2016
Electric Power Generation

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer FIVE full questions, selecting at least TWO questions from each part.
2. Any missing data may be suitably assumed.

PART – A

- 1 a. With block diagram explain the working of wind energy conversion system. (08 Marks)
- b. With neat sketch, explain the working of fuel cell. (06 Marks)
- c. With neat sketch, explain the concept of co-generation plant. (06 Marks)
- 2 a. With neat sketch, explain the methods of increase the thermal efficiency in gas turbine plant. (08 Marks)
- b. With neat sketch, explain the working of biogeneration plant. (06 Marks)
- c. Explain the advantages of distributed power generation system. (06 Marks)
- 3 a. Mention the factors to be considered for the selection of site for a hydro electric power plant. (06 Marks)
- b. Write short notes on: i) Air pre heater ii) Condenser iii) Super heater and Reheater iv) Boiler. (08 Marks)
- c. Explain the power station structure and control in hydro-electric power plant. (06 Marks)
- 4 a. Briefly explain: i) Nuclear fuels ii) Cladding and structural materials iii) Coolants iv) Control rod materials. (08 Marks)
- b. What are the merits and demerits of nuclear power plant? (06 Marks)
- c. Explain the various methods of nuclear disposal. (06 Marks)

PART – B

- 5 a. Define the following terms: i) Connected load ii) Demand factor iii) Load factor iv) Diversity factor v) Plant use factor vi) Plant utilization factor. (06 Marks)
- b. The yearly load duration curve can be considered as a straight line from 300 MW to 80 MW for a certain power plant. Power is supplied with one generating unit of 200 MW capacity and two units of 100 MW capacity each. Calculate (i) Installed capacity (ii) Load factor (iii) Plant factor (iv) Plant utilization factor. (08 Marks)
- c. A power station is to supply for regions of load whose peak loads are 10 MW, 5 MW, 8 MW and 7 MW. The diversity factor of the load at the station is 1.5 and average annual load factor is 0.6. Calculate maximum demand on the station and annual energy supplied from the station. (06 Marks)
- 6 a. Define power factor. What are the effects of low P.F? What are the methods of improving P.F.? (06 Marks)
- b. Explain any three types of tariff. (06 Marks)
- c. Explain the classification of substation according to service requirement and constructional features. (08 Marks)
- 7 a. Explain the necessity of current limiting reactor in power system. (06 Marks)
- b. With neat sketch, explain an ungrounded system in power system. (08 Marks)
- c. Define effective earthing. Explain the significance of effective earthing for present day operation of electrical equipment installation. (06 Marks)
- 8 Write short notes on:
 - a. Resonant grounding.
 - b. Neutral grounding.
 - c. Reactance grounding.
 - d. Earthing transformer. (20 Marks)