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Third Semester B.E. Degree Examination, Dec 08 / Jan 09
Electric Power Generation

Time: 3 hrs.   Max. Marks:100

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

PART - A

1 a. With a neat block diagram, explain the working of a geothermal power plant. (08 Marks)
   b. Mention any three advantages and three disadvantages of wind energy. (06 Marks)
   c. Discuss the benefits of cogeneration. (06 Marks)

2 a. Mention the application of Diesel – Electric power plants. (04 Marks)
   b. With neat block diagram, discuss the principle of operation of an open cycle gas turbine plant. Why is its efficiency low? (08 Marks)
   c. With a neat sketch, explain the principle of operation and working of biogeneration plant. (08 Marks)

3 a. Mention the advantages and disadvantages of nuclear power plant. (06 Marks)
   b. Mention the factors to be considered for the selection of site for a hydro electric power plant. (06 Marks)
   c. Discuss the functions of condenser, cooling towers and economizer in a thermal plant or thermal power station. (08 Marks)

4 a. List out the advantages and disadvantages of nuclear power plant. (08 Marks)
   b. Discuss some of the safety measures incorporated for nuclear power plant. (07 Marks)
   c. Explain the necessity of providing shielding in nuclear power reactors. (05 Marks)

PART - B

5 a. Define the following terms : i) Connected load   ii) Demand factor   iii) Load factor   iv) Diversity factor   v) Utilization factor. (05 Marks)
   b. The yearly load duration curve can be considered as a straight line from 300MW to 80MW for a certain power plant. Power is supplied with one generating unit of 200MW capacity and two units of 100MW capacity each. Determine : i) Installed capacity   ii) Load factor   iii) Plant factor   iv) Maximum demand   v) Utilization factor. (10 Marks)
   c. A power station is to supply for regions of load whose peak loads are 10MW, 5MW, 8MW and 7MW. The diversity factor of the load at the station is 1.5 and average annual (yearly) load factor is 0.6. Calculate maximum demand on the station and annual energy supplied from the station. (05 Marks)

6 a. Mention any five objectives of Tariff. (05 Marks)
   b. The load on a power plant on a typical day is as under

Time	12–5am	5–9am	9-6pm	6pm–10pm	10-12pm
Load (MW)	20	40	80	100	20

   Draw the energy load curve.
   c. Find the power factor of an installation supplying following loads : 300kW at unity power factor. 1000 kW at 0.9 lagging power factor and 1500 kW at 0.8 lagging power factor.
   d. Name the different types of bus schemes of substation (substations).

7 a. Discuss the locations of reactors in a power system. (08 Marks)
   b. List out the steps involved in short circuit MVA calculation of a power system. (06 Marks)
   c. Discuss the advantages of grounding. (06 Marks)

8 Write short notes on:
   a. Resonant grounding. b. Neutral grounding. c. Reactence grounding. d. Earthing Transformer. (20 Marks)

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