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Third Semester B.E. Degree Examination, Dec.2013 / Jan. 2014
Electric Power Generation

Time: 3 hrs.

Max. Marks:100

Note: 1. Answer any FIVE full questions, selecting atleast TWO questions from each part.
2. Assume missing data if any.

PART - A

1. a. With a neat block diagram, explain the working of a solar power plant. (07 Marks)
 b. Mention any three advantages and three disadvantages of wind energy. (05 Marks)
 c. Explain with a block diagram, typical geothermal power plant. (08 Marks)
2. a. What are the points to be considered for the site selection of diesel power plant? Explain briefly. (06 Marks)
 b. With a neat figure, explain the schematic arrangement of a diesel engine power plant. (10 Marks)
 c. Mention the applications of gas turbine. (04 Marks)
3. a. How the hydel plants are classified? Explain with a neat figure pump storage plants for peak – load. (10 Marks)
 b. Explain the different parts of a thermal power plant, with the help of a neat schematic diagram. (10 Marks)
4. a. Explain with a neat figure the main parts of a reactor and their functions. (10 Marks)
 b. Mention the advantages and disadvantages of nuclear power plant. (05 Marks)
 c. Mention the factors to be considered for the selection of site for nuclear plant. (05 Marks)

PART - B

5. a. State the Causes and effects of a poor power factor also explain methods of power factor improvement. (10 Marks)
 b. The peak load on a 50MW power station is 39MW. It supplies power through four transformers whose connected loads are 17, 12, 9 and 10 MW. The maximum demands on these transformers are 15, 10, 8 and 9MW respectively. If the annual load factor is 50% and the plant is operating for 65% of the period in a year, find out the following :
 i) Average load on the station ii) Energy supplied per year iii) Demand factor
 iv) Diversity factor v) Power station use factor. (10 Marks)
6. a. Define a substation and mention different types of substations. (06 Marks)
 b. Explain how the current limiting reactors classified on their location in the power system. (10 Marks)
 c. Explain ring bus arrangement. (04 Marks)
7. a. Define Tariff. Explain i) Block rate tariff ii) Two part tariff iii) KVA maximum demand tariff. (06 Marks)
 b. What is power factor? Explain any one method of improving power factor. (06 Marks)

- c. A generating station has a maximum demand of 100MW. Calculate the cost per unit generated from the following data :

Capital cost = Rs 200×10^6 ; Annual load factor = 40% ;

Annual cost of fuel and oil = Rs 15×10^6 ;

Taxes wages and salaries etc = Rs 10×10^6 ; Interest and depreciation = 15%.

(08 Marks)

- 8 Write short notes on any four :

- Resonant grounding.
- Neutral grounding.
- Reactance grounding.
- Earthing transformer.
- Resistance grounding.

(20 Marks)
