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Third Semester B.E. Degree Examination, Dec.2014/Jan.2015

Electric Power Generation

Time: 3 hrs.

Max. Marks: 100

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

PART – A

- 1 a. With a neat diagram, explain the working of a solar photovoltaic power plant. Indicate its advantages. (08 Marks)
- b. Explain briefly the advantages and disadvantages of a geo-thermal plant. (06 Marks)
- c. Explain the working of tidal power plant with a neat sketch. (06 Marks)
- 2 a. Explain the working of a simple gas turbine power plant. What are its limitations? (08 Marks)
- b. Explain the layout plan of a typical diesel electric power plant, with a diagram. (06 Marks)
- c. Explain mini and micro hydro power plants briefly. (06 Marks)
- 3 a. With a block diagram, explain different parts of a steam power plant. (08 Marks)
- b. Explain the working of surge tank in a hydroelectric power station. (06 Marks)
- c. Write a note on ash disposal methods in a steam power plant. (06 Marks)
- 4 a. Explain with a neat sketch, the main parts of a nuclear power plant. (08 Marks)
- b. List out the limitations of a nuclear power plant. (06 Marks)
- c. Write a note on the safety precautions to be taken in a nuclear power plant. (06 Marks)

PART – B

- 5 a. Define the following terms:
 - i) Load factor
 - ii) Diversity factor
 - iii) Plant capacity factor
 - iv) Plant use factor
 (08 Marks)
- b. Explain the factors which influence the rate of tariff. (06 Marks)
- c. A 50 Hz, single phase load takes 30 KW and 20 KVAR lagging from a 240 Volts supply. What capacitance would be required in parallel with the load to bring the overall power factor to 0.95 lagging? (06 Marks)
- 6 a. Briefly explain different types of substations. (08 Marks)
- b. Define a bus-bar. Explain briefly a typical bus-bar arrangement scheme. (06 Marks)
- c. Write a note on current limiting reactors used in a power system. (06 Marks)
- 7 a. Explain the need for grounding in an electrical installation. List the different types of grounding. (08 Marks)
- b. Explain neutral grounding briefly. (06 Marks)
- c. Explain an ungrounded system in a power system. (06 Marks)
- 8 a. With a neat sketch, explain resonant grounding. (08 Marks)
- b. Explain the use of Earthing transformer for grounding. (06 Marks)
- c. Explain solid grounding, briefly. (06 Marks)
