



Third Semester B.E. Degree Examination, Dec.09-Jan.10
Electric 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. With a schematic diagram, explain the working of a gas turbine power plant. (06 Marks)
 - b. Draw the flow diagram of a diesel power station and discuss its operation. (06 Marks)
 - c. Discuss the concept of co-generation, its merits and demerits. (08 Marks)
- 2
 - a. With a schematic diagram, explain the working of a tidal power plant and geothermal power plant. (08 Marks)
 - b. State the advantages of operating the power plants combined in electric power system. (04 Marks)
 - c. What are chemical fuels? Explain the classification of fuels with an example for each. (08 Marks)
- 3
 - a. Discuss the classification of hydro – electric power plants. Explain high head and base load power plant. (08 Marks)
 - b. Discuss the advantages and disadvantages of a hydro – electric power plant. (04 Marks)
 - c. With a schematic diagram, explain the main parts and operation of a thermal power plant. (08 Marks)
- 4
 - a. Enumerate and explain essential components of a nuclear reactor. (08 Marks)
 - b. Describe the construction and working of a pressurized water reactor. What are its advantages and disadvantages? (08 Marks)
 - c. Explain the method of nuclear waste disposal. (04 Marks)

PART - B

- 5
 - a. Define the following terms : i) Load factor ii) Diversity factor iii) Plant capacity factor and iv) Plant use factor. (08 Marks)
 - b. Write a note on load curve and its importance. (04 Marks)
 - c. A power station has to meet the following demand :
 Group A : 200 kW between 8 A.M and 6 P.M. ; Group B : 100 kW between 6 A.M and 10 A.M.
 Group C : 50 kW between 6 A.M and 10 A.M. ; Group D : 100 kW between 10 A.M and 6 P.M. and between 6 P.M and 6 A.M. Plot the daily load curve and determine i) Diversity factor ii) units generated per day iii) Load factor. (08 Marks)
- 6
 - a. Discuss the disadvantages and causes of low power factor of the supply system. (08 Marks)
 - b. Explain the classification of substations according to service requirement and constructional features. (08 Marks)
 - c. With a diagram, explain single – bus – bar system with sectionalisation. (04 Marks)
- 7
 - a. Explain Feeder reactors and Bus – bar reactors in power systems for limiting short – circuit currents. (06 Marks)
 - b. The single line diagram of a three – phase system is as shown in fig. Q7(b). Percentage reactance of each alternator is based on its own capacity. Find the short – circuit current that will flow into a complete three – phase short circuit at F. (06 Marks)

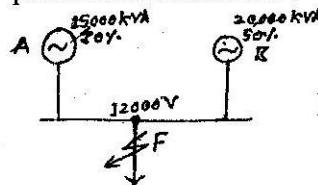


Fig.Q7(b)

- 8
 - a. Discuss the necessity of neutral grounding. (08 Marks)
 - a. Explain solid grounding and resistance grounding. (10 Marks)
 - b. With a schematic arrangement and phasor diagram, explain the resonant grounding. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.