



USN

10EE844

Eighth Semester B.E. Degree Examination, Jan./Feb. 2021
Electrical Distribution System

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. Why the distribution system and its planning is important to an electrical utility and hence discuss the present distribution planning techniques. (10 Marks)
b. Explain the following: i) Future trends of distribution planning ii) Distribution S/S planning models. (10 Marks)
- 2 a. Write a note on load growth. (06 Marks)
b. Define:
i) Diversity factor ii) Load diversity iii) Demand and demand interval. (06 Marks)
c. Assuming the peak-load input to a primary feeder is 2000kW and total copper loss at the time of peak-load is $\sum I^2 R = 100\text{kW}$ and the annual energy supplied to the sending end of the feeder is $5.61 \times 10^6\text{kWh}$. Calculate:
i) The annual loss factor using the equation $F_{LS} = 0.3F_{LD} + 0.7F_{LD}^2$
ii) The total annual copper-loss and its value at \$ 0.06 kWh (08 Marks)
- 3 a. Explain the basic principles in distribution system planning and hence discuss the different planning methods in brief. (12 Marks)
b. Write a note on “System development”. (08 Marks)
- 4 a. Give the financial analysis of distribution system. (06 Marks)
b. Explain Global positioning system and background mapping. (06 Marks)
c. Explain in detail the features and benefits of GIS in mapping of complete electrical network. (08 Marks)

PART – B

- 5 a. Explain the long-term and short-term measures to improve distribution system efficiency. (10 Marks)
b. With neat diagram, explain different bus schemes. (10 Marks)
- 6 a. Explain why voltage control is needed and hence discuss various methods to achieve voltage control. (10 Marks)
b. Explain the following:
i) Harmonics in distribution system ii) Energy management. (10 Marks)
- 7 a. Define Distribution Automation. Discuss in detail the need for automation of distribution system along with its benefits. (06 Marks)
b. Explain the following with respect to Distribution Automation:
i) Automatic Switching Control
ii) Data concentrator unit
iii) Programmable Logic Controller (PLC) (06 Marks)
c. Explain the role of sensors in Distribution Automation. (08 Marks)
- 8 a. Explain briefly about synthesis of optimum line networks and hence discuss Engineering judgement method in brief. (10 Marks)
b. With the typical network and switching arrangements, explain briefly about typical network configurations. (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.