

ELECTRICAL DISTRIBUTION SYSTEMS

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

1 Answer the following: (10 X 02 = 20 Marks)

- (a) Define Coincidence factor.
- (b) Define Contribution factor.
- (c) Define the term "Feeder".
- (d) Define the term "Distributor".
- (e) Define the term Bus-bar.
- (f) Explain switching substation.
- (g) Write short notes on power factor correction.
- (h) Draw the phasor diagram of shunt compensation.
- (i) Define Man Machine Interface.
- (j) Define geographical information system.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Obtain the relationship between the load factor and loss factor.

OR

3 Explain the characteristics of residential, Agricultural, industrial and commercial loads.

UNIT – II

4 Draw the single line diagram of radial type primary feeder and mention the factors that influence the selection of primary feeder.

OR

5 Explain basic design practice of secondary distribution system and also discuss about secondary banking.

UNIT – III

6 (a) What are the factors considered when selecting a location for a substation?
(b) State the benefits obtained through optimal location of substation.

OR

7 (a) Explain the classification of substations according to design.
(b) Compare the four and six feeder patterns of substation service area if they are thermally loaded.

UNIT – IV

8 (a) Explain the manual method of solution for radial distribution systems.
(b) Derive the equation for load power factor for which the voltage drop is maximum.

OR

9 A 3 Phase, 500 H.P, 50 Hz, 11 kV star connected induction motor has a full load efficiency of 85% at a lagging p.f. of 0.75 and connected to a feeder. If it is desired to correct it to a p.f. of 0.9 lagging load. Determine the following: (i) The size of the capacitor bank. (ii) The capacitance of each unit if the capacitors are connected in star as well as delta.

UNIT – V

10 Explain the benefits of Distribution Automation as applied to:

- (a) Substation automation
- (b) Feeder automation.

OR

11 What are the components of SCADA in distribution automation
