Code: EE7T6A

IV B.Tech - I Semester – Regular / Supplementary Examinations November 2016

ELECTRICAL DISTRIBUTION SYSTEMS
(ELECTRICAL & ELECTRONICS ENGINEERING)

Duration: 3 hours   Max. Marks: 70

Answer any FIVE questions.   All questions carry equal marks

1.
  a) Define the following terms.   6 M
     i) Coincidence factor   ii) Loss factor
     iii) Load factor   iv) Maximum demand
     v) Diversity factor   vi) Contribution factor

  b) A feeder supplies 2 MW to an area. The total loss at peak is 100 kW and units supplied to that area during a year are 5.61 Million. Calculate the loss factor and average power loss. Also illustrate loss factor varies with load factor for different functional relations.   8 M

2.
  a) What is secondary distribution? List the factors that influence the voltage levels in the design and operation of distribution system.   7 M

  b) Compare radial and loop types of primary feeders.   7 M

3.
  a) What are the benefits derived through optimal location of substations?   7 M

  b) Distinguish four and six feeder patterns.   7 M

4.
  a) Explain voltage drop and power loss in single phase two-wire ungrounded lateral and 3-Φ system.   7 M

  b) Write short notes on three phase balanced primary lines.   7 M

5.
  a) With neat diagram explain the various faults that occur in distribution system.   7 M

  b) Write the procedure for fault current calculation in three phase fault in distribution system.   7 M

6.
  a) Explain general coordination procedure for recloser to circuit breaker.   7 M

  b) Explain the coordination procedure between recloser to recloser.   7 M

7.
  a) What are the different types of power capacitors? Explain the effect of fixed and switched shunt capacitors in distribution system.   7 M

b) What is power triangle? Explain the calculation of power factor correction for different loadings in distribution system. 7 M

8.
  a) Explain about tap-changing transformers with neat diagram. 6 M

  b) A load of 10,000 kW at a power factor of 0.8 lagging is supplied by a three phase line, whose voltage has to be maintained at 33 kV at each end. If the line resistance and reactance per phase are 5Ω and 10Ω respectively. Calculate the capacity of the synchronous condenser to be installed for this purpose. Give comments on the result. 8 M