

Code No: RT41029

R13

Set No. 1

IV B.Tech I Semester Supplementary Examinations, March - 2017

ELECTRICAL DISTRIBUTION SYSTEMS

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

PART-A (22 Marks)

1. a) Explain different types of electric supply systems. [4]
- b) Classify different types of primary feeders and give their merits and demerits. [3]
- c) Derive the expression for voltage drop for non-three phase system. [3]
- d) Define the terms i) Nominal voltage ii) Rated voltage. [4]
- e) Write short notes on Unified Power Flow Controller (UPFC). [4]
- f) Explain the effect of AVR on voltage control. [4]

PART-B (3x16 = 48 Marks)

2. a) Explain the characteristics of residential, industrial and commercial loads. [8]
- b) The annual peak load of substation is 3500kW. The annual energy supplied to the primary feeder circuit is 20×10^6 kWh.
Find:
 - i) The annual average power demand
 - ii) The annual load factor. [8]
3. a) Draw the single line diagram of 33-kV / 11-kV substation and explain the purpose of each component. [8]
- b) Explain the different factors to be considered to decide the ideal location for a substation. [8]
4. a) What are the power losses in A.C distribution? How is it estimated approximately? [8]
- b) Give the factors which will affect the selection of conductor size of feeder. [8]
5. a) What are the objectives of distribution system protection? What is the data required for selecting a protective device. [8]
- b) Explain Fuse-circuit breaker coordination procedure. [8]
6. a) Explain the practical procedure to determine the best capacitor location. [8]
- b) A synchronous motor having a power consumption of 40 KW is connected with a load of 150KW, a lagging p.f of 0.8. If the combined load has a power factor of 0.9, what is the leading reactive KVA supplied by the motor and at what p.f is it working. [8]
7. a) Describe different types of equipment for voltage control with neat diagrams. [8]
- b) Explain the line drop compensation on voltage control. [8]