Code No:**R1642023** **R16** **Set No. 1**

IV B.Tech II Semester Regular/Supplementary Examinations, July - 2021

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 FOUR questions from Part-B

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PART–A *(14 Marks)*

1. a) What are the different types of Electrical Loads? Give Examples. [2]
   b) List the various factors that affect the feeder voltage level. [2]
   c) What are the power losses in AC Distribution? How is it estimated approximately? [3]
   d) List the advantages and disadvantages of Fuse. [2]
   e) List the causes of low power factor [3]
   f) Explain the need for maintaining the good voltage profile in Power systems [2]

PART–B *(4x14 = 56 Marks)*

2. a) Explain the methods that are adopted for reduction of Distribution System losses. [7]
   b) How do you categorize the types of loads? Explain in detail. [7]

3. a) Discuss in detail the arrangement of primary and secondary distribution systems? [7]
   b) Compare the percentage voltage drop of the feeders with square type service area and hexagonal type service area. [7]

4. The length of the feeders are AD = 50 m, DE = 150m, EB = 400m, BC = 100m and CA = 200 m and let the 220 V dc supply is connected to points A and B. The resistance per Km is 0.25 Ω. Determine the minimum voltage point. [14]

5. a) Explain the basic principle and operation of Circuit breaker and give its usage. [7]
   b) Explain the principle of a sectionalizer. How is it coordinated with a fuse? [7]

6. a) Explain how voltage improvement can be achieved using capacitor banks. [7]
   b) An induction motor takes 60 KW at 0.78 power factor lagging from a 415 V three phase supply. It is needed to improve the power factor to 0.92. Determine the KVAR of the capacitor bank needed. [7]

7. a) Explain the basic function of Booster transformer? How does it increase the line voltage. [7]
   b) Explain the working of Step type voltage regulators with a neat sketch. [7]