SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. III Year I Semester Regular & Supplementary Examinations February-2024
ELECTRICAL DISTRIBUTION AND AUTOMATION
(Electrical and Electronics Engineering)

Time: 3 Hours   **Max. Marks: 60**

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	**a**	What is Diversity factor? What is the importance of diversity factor?	CO1	L2	6M
	b	A power station has a maximum demand of 16000 kW. The annual load factor is 50% and plant capacity factor is 40%. Determine the reserve capacity of the plant.	CO1	L4	6M

OR

2 Define and explain the importance of the following terms in generation: (i) connected load (ii) maximum demand (iii) demand factor (iv) average load   CO1   L1   12M

UNIT-II

3 A single phase distributor one km long has resistance and reactance per conductor of $0.12\ \Omega$ and $0.152\ \Omega$ respectively. At the far end, the voltage $V_B = 200$ V and the current is 100 A at a p.f. of 0.8 lagging. At the mid-point M of the distributor, a current of 100 A is tapped at a p.f of 0.6 lagging with reference to the voltage VM at the mid-point. Calculate :
(i) voltage at mid-point (ii) sending end voltage V_A (iii) phase angle between V_A and V_B.   CO2   L3   12M

OR

4 What is the difference between AC and DC distribution system?   CO2   L1   12M

UNIT-III

5 **a** What is Neutral grounding? What are the advantages of neutral grounding?   CO3   L1   6M
    b Explain Indoor and outdoor substation.   CO3   L1   6M

OR

6 Explain the classification of Substations.   CO3   L1   12M

UNIT-IV

7 A single phase A.C. Generator supplies the following loads: (i) Lighting load of 20 kW at unity power factor. (ii) Induction motor load of 100 kW at P.F. 0.707 lagging. (iii) Synchronous motor load of 50 kW at P.F 0.9 leading. Calculate the total KW and KVA delivered by the generator and the power factor at which it works   CO4   L4   12M

OR

8 **a** Enumerate why unity power factor not the most economical P.F?   CO4   L1   6M
    b Contrast in brief about a consumer having low power factor is charged at higher rates   CO4   L2   6M

UNIT-V

9 Explain distribution automation? Give the various functions of distribution automation.   CO5   L1   12M

OR

10 What is geographical information system and explain in brief.   CO6   L1   12M

*** END ***