SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech IV Year I Semester Supplementary Examinations February-2022
ELECTRICAL DISTRIBUTION SYSTEMS
(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 60

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

UNIT-I

1	a	Discuss the relationship between load factor and loss factor?	6M

b A generating station has a maximum demand of 2W, a load factor of 60%, a plant **6M** capacity factor of 50% and a plant use factor of 72%. Find (i) the reserve capacity of the plant (ii) the daily energy produced and (iii) maximum energy that could be produced daily if the plant while running as per schedule, were fully loaded.

OR

2 a) Define Load factor? **12M**

b) What is plant capacity factor?

c) Define Average load and Connected Load?

d) Define (i) Loss factor (ii) Utilization factor

e) Define Demand factor?

UNIT-II

3 a Explain the AC secondary distribution system with diagram. **4M**

b A single phase distributor 2 kilometers long supplies a load of 120 A at 0•8 p.f. lagging **8M** at its far end and a load of 80 A at 0•9 p.f. lagging at its mid-point. Both power factors are referred to the voltage at the far end. The resistance and reactance per km (go and return) are 0•05 Ω and 0•1 Ω respectively. If the voltage at the far end is maintained at 230 V, Calculate: (i) Voltage at the sending end (ii) Phase angle between voltages at the two ends.

OR

4 A two-wire d.c distributor AB, 600 meters long is loaded as under: **12M**

Distance from A (meters)	150	300	350	450
Loads in Amperes	100	200	250	300

The feeding point A is maintained at 440V and that of B at 430V. If each conductor has a resistance of 0.01Ω per 100 meter, calculate

(i) The current supplied from A to B (ii) The power dissipated in the distributor.

UNIT-III

5 a What is solid grounding? What are its advantages and disadvantages solid grounding. **6M**

b What is resistance grounding? What are its advantages and disadvantages? **6M**

OR

6 Explain different types of bus bar arrangements with neat sketch? And give the advantages **12M** Disadvantages.

UNIT-IV

7   a   Determine the optimum capacitor allocation for improvement of power factor.   6M

    b   List the various causes of low power factor and explain.   6M

OR

8   a   Explain the role of shunt and series capacitors in power factor correction.   6M

    b   A single phase a.c. generator supplies the following loads :   6M

        (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.

UNIT-V

9   a   Explain distribution automation? Give the various functions of distribution automation.   6M

    b   Explain the distribution system Project planning with diagram   6M

OR

10 a   What are the benefits of distribution automation?   6M

    b   Explain about Information technology and LAN.   6M

*** END ***