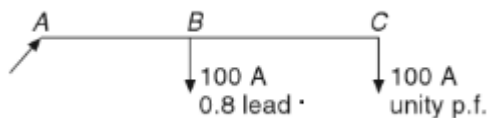### UNIT-I A.C DISTRIBUTION
1. Explain single phase 2-wire and 3-wire system.
2. Explain three phase 3-wire and 4-wire system.
3. Explain different busbar arrangements with neat sketch?
4. Compare AC and DC distribution systems?
5. Explain different busbar arrangements with neat sketch?
6. Explain method power factors referred to receiving end voltage for solving A.C distribution problems.
7. Explain method power factors referred to respective load voltages for solving A.C distribution problems.
8. Below figure shows a single-phase line having resistance and reactance of 0.06 and 0.1 ohm/km. the length of section AB and BC are 1km each. The voltage at the farther end is 220V. find the voltage at sending end and phase angle difference between the voltage of two ends.

9. Explain any 8 disadvantages of AC distribution system.
10. Draw the schematic diagram of three -phase four -wire ac distribution system.
11. List out merits and demerits of AC Distribution system.
12. A single-phase AC distributor, AB 300 meters long is fed from A and is loaded as follows:
    a) 100 A at 0.707 pf lagging 200 m from point A.
    b) 200 A at 0.8 pf lagging 300 m from point A

    The load resistance and reactance of the distributor is 0.2 ohms and 0.1 ohm per kilometre. calculate the total voltage drop in the distributor. the load power factors refer to the voltage at the far end.
13. Explain the following with neat diagrams:
    i)   AC 3 phase 3 wire distribution system
    ii)   AC 3 phase 4 wire distribution system

UNIT-II VOLTAGE CONTROL & POWER FACTOR IMPROVEMENT
1. Define Power factor.
2. Discuss the importance of power factor correction.
3. What are the disadvantages of low power factor
4. What are the advantages of Series compensation?
5. What are the advantages of Shunt compensation?
7. Discuss the importance of voltage control in the modern power system.
8. What are the various methods of voltage control in a power system ?
9. Describe with the aid of neat sketch the construction and working of a Tirril regulator.
10. Explain the construction and working of Brown-Boveri regulator with a neat sketch.
11. Describe the off-load tap_changing_transformer method of voltage control. What are the limitations of the method ?
12 . Explain with a neat sketch :
    (i) On-load tap-changing transformer
    (ii) Auto-transformer tap-changing

13. What do you understand by induction regulators ? Describe single phase and three phase induction regulators.

14 . Describe the synchronous condenser method of voltage control for a transmission line. Illustrate your answer with a vector diagram.

15 . Voltage control equipment is generally located at more than one point. Why ?

16 . Tap-changing is generally performed on <u>load</u>. Why ?

UNIT-III PER UNIT REPRESENTATION & COMPENSATION OF POWER SYSTEMS

1. Explain single line diagram in power systems.
2. Draw and explain impedance and reactance diagrams in power systems.
3. What is per unit (PU) method of representing quantities.
4. What are the advantages and draw backs of per unit (PU) system.
5. Explain about change of base.
6.

UNIT-IV SYMMETRICAL COMPONENTS AND FAULT CALCULATIONS

1. What is the significance of positive, negative and zero sequence components.
2. Derive the average 3-phase power in terms of symmetrical components .
3. Explain sequence impedances and sequence networks.
4. Derive sequence network equations.
5. Explain about single line to ground fault, line to line fault and double line to ground fault.
6. What are the three phase faults .
7. What are the faults on power systems.
8. Explain faults with fault impedance.

UNIT-V   OVERHEAD LINE INSULATORS & SUBSTATIONS

1. List the types of insulators.
2. Derive the equation for potential distribution over a string of suspension insulators.
3. What are the methods to equalize the potential over the string.
4. Define sag and tension .
5. For a overhead line span length is 180m, difference in levels of support is 7m, conductor diameter 2cm, weight per unit length of conductor 2kg and wind pressure of 45 kg/m^2 of projected area . if the maximum tensile strength of the conductor is 4500 kg/cm^2 and safety factor 5, calculate the sag.
6. Derive the sag expression for a transmission line at equal level supports.
7. A string of suspension insulators consists of 5 units each having capacitance C. the capacitance between each unit and earth is 1/8 of C. determine the voltage of conductor to earth. If the insulators in the string are designed to withstand 36 kv maximum, calculate the operating voltage of the line where 5 suspension insulator strings cab be used.
8. Explain about indoor and outdoor substations.
9. Draw the Substation layout by showing the location of all substation equipment?

10.Explain the bus bar arrangement in the sub-stations.

10.Explain the bus bar arrangement in the sub-stations.