

Module-3

- 5 a. Explain the nominal π method for obtaining the performance calculations of medium transmission line. Draw the corresponding vector diagram. (08 Marks)
- b. A 3-phase, 50Hz overhead transmission line of 100km has the following constants Resistance per km per phase is 0.1Ω , inductive reactance per km per phase is 0.2Ω capacitive susceptance per km per phase is $0.4 \times 10^{-14}\text{U}$. Find :
- Sending end current
 - Sending end voltage
 - Sending end p.f
 - Transmission efficiency
- when supplying a balanced load of 10,000 KW at 66KV with a lagging p.f. of 0.8. Use nominal T-method. (08 Marks)

OR

- 6 a. Derive an expression for ABCD constants of a medium transmission line using nominal T-method. Show that $AD - BC = 1$. (10 Marks)
- b. Write a short note on 'Ferranti effect'. (06 Marks)

Module-4

- a. Derive an expression for critical disruptive voltage and visual critical voltage with reference to corona. (06 Marks)
- b. A 132KV line with 1.956cm dia. conductors is built so that corona takes place if the line voltage exceeds 210KV(rms). If the value of potential gradient at which ionization occurs can be taken as 30 Kv/cm. Find the spacing between the constructors. (06 Marks)
- c. Explain the factors affecting corona in brief. (04 Marks)

OR

- 8 a. What are the methods of grading of cables? Explain intersheath grading of cable. (09 Marks)
- b. Derive an expression for the insulation resistance of a single core cable. (07 Marks)

Module-5

- 9 a. Briefly explain radial and ring main distributors. (07 Marks)
- b. Draw the schematic diagram and hence obtain the expressions for voltages at different tapping points of a DC distributor fed at one end with concentrated loads. (09 Marks)

OR

- 10 a. A two-wire distributor AB, 600m long is loaded as –

Distance from A (mtrs)	150	300	350	450
Loads in Amps	100	200	250	300

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

- The currents supplied from A and B
 - The power dissipated in the distributor. (12 Marks)
- b. What are the requirements of good distribution system? (04 Marks)
