

Duration 3hrs

Total Marks -80

- N.B.:-** (1) Question No.1 is compulsory.
 (2) **Attempt** any **three** questions out of remaining **five** questions.
 (3) Draw neat diagrams wherever it is necessary.

- Q 1.** Answer the following questions.
- A) Write a short note on phase shift in star-delta transformers. **05**
 - B) Discuss the phenomenon of corona. **05**
 - C) Explain the following typical cases of line specifications; **05**
 - 1) Open circuited line.
 - 2) Short circuited line.
 - D) What is tower footing resistance? **05**
- Q 2** a) Explain in brief Selection of circuit breakers and short circuit MVA. **10**
- Q 2** b) Discuss Z_{BUS} building algorithm. **10**
- Q 3** a) Derive the necessary equation to determine the fault current for a line-to-line fault. Draw the diagram showing the inter-connection of sequence networks. **10**
- Q 3** b) Explain the zero sequence impedance networks of transformer. **10**
- Q 4** a) Discuss the phenomenon of wave reflection and refraction. Derive expressions for reflection and refraction coefficients. **10**
- Q 4** b) How can Bewley Lattice be drawn? Discuss its use. **10**
- Q 5** a) Define disruptive critical voltage and visual critical voltage. On what factors do they depend? Derive the equations for calculating these voltages. **10**
- Q 5** b) Discuss the use of ; **10**
- a) Ground wires.
 - b) Surge arrestors.
- Q 6** a) Explain surge impedance loading. Also Explain the effect of line length, load power and power factor on voltage and reactive power. **10**
- Q6** b) Discuss the maximum power transfer and stability considerations in transmission line. **10**
