

(3 Hours)

(Total Marks : 80)

N.B. :

- (1) Question no: 1 is Compulsory.
- (2) Answer any three questions from the remaining five questions.
- (3) Assume suitable data if necessary.

- 1. a) Explain resonant transformer and cascade transformer. 10
- b) State and explain paschen's law. 10
- 2. a) Explain the theory of "Avalanche" in gaseous dielectrics. Discuss how it leads to Townsend's mechanism of spark breakdown. State factors to control 10
- b) Various factors that affect the breakdown of gases. 10
- 3. a) Define Townsend's first and second ionization constant. How the condition for breakdown is obtained in Townsend discharge. 10
- b) Explain the phenomenon of tracking in solid insulating materials using electrical stress. How can it be minimized 10
- 4. a) What are commercial liquid dielectrics and how are they different from pure liquid dielectrics. 10
- b) Explain thermal breakdown in solid dielectrics. 10
- 5. a) Explain Cavitation and bubble mechanism 10
- b) With neat sketch explain the trigatron spark gap used in impulse generators 10
- 6. a) Explain the 3phase Marx impulse generator circuit and discuss its applications 10
- b) Describe the various tests carried out on overhead line insulators. 10