

(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