

(3 Hours)

NB. (1) Question no: 1 is Compulsory.

(2) Solve any three questions out of remaining.

(3) Assume suitable data if required and Specify the same.

1. a) Explain the Streamer theory of breakdown in air at atmospheric pressure. (10)
b) Define and explain the following terms
(i) Statical time lag
(ii) Formative time lag
(iii) Over voltage and impulse ratio
(iv) Total time lag
2. a) Draw basic circuit of radio interference measurement. Explain its principle of operation and its application in high voltage testing laboratories. (10)
b) What is principle of operation of Resonant Transformer? How is it advantages over cascade connection transformers? (10)
3. a) What is partial discharge? Differentiate between internal and external discharges. (10)
b) Explain how sphere gas measurement can be used to measure the peak value of the voltage for the effect of voltage measurement. (10)
4. a) With reference to conduction and breakdown in commercial liquids explain
(i) Suspended Particle Mechanism
(ii) Cavitation and Bubble Mechanism
(iii) Stressed oil volume mechanism
b) What is 'Cascade Transformer'? Explain why cascading is necessary? (10)
With neat diagrams, explain a three stage cascaded transformer system.
5. a) Write short note on:- H V Laboratory Layout, grounding and Shielding. (10)
b) Explain Generating Voltmeters. (10)
(i) Objectives
(ii) Schematic diagram (Rotating Vane type)
(iii) Principle of operation
(iv) Applications & Limitations
6. a) Describe various tests that are carried on 'Transformers' as per IS codes. (10)
b) What do you understand by 'intrinsic strength' of a solid dielectric? How does breakdown occur due to electron in a solid dielectric? (10)
