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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (EE) PT (Sem.-9)
HIGH VOLTAGE ENGINEERING
Subject Code : BTEE-802
M.Code : 75643

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A**1. Answer briefly :**

- a. Define the tuned power line.
- b. Derive the expression of corona loss.
- c. Define the composite dielectrics.
- d. Define the intrinsic strength of solid dielectric.
- e. Write any four application of insulating material in high voltage equipments.
- f. Write any four name of insulating liquid used in high voltage equipments.
- g. Define the ionization process in gases during the breakdown phenomena.
- h. Define the tripping and contact of impulse generator.
- i. Define the front and tail times of an impulse wave.
- j. Write the name of different converter station equipments.

SECTION-B

2. Explain the suspended particle theory of liquids breakdown.
3. State and explain Paschen's Law. Derive expression for $(pd)_{min}$ and V_{bmin} . Assume $A = 12$, $B = 365$, and $\gamma = 0.02$ for air. Determine $(pd)_{min}$ and V_{bmin} .
4. How is a lossy dielectric represented in the form of a circuit model explain it in detail?
5. What is a trigatron? Explain its functions and operations.
6. An electrostatic voltmeter has two parallel plates. The movable part is 10 cm in diameter. With 10 kV between the plates, the pull is 5×10^{-3} N. Determine the change in capacitance for a movement of 1 mm of movable plate.

SECTION-C

7. Why is a Cock-Craft Walton circuit preferred for voltage multiplier circuits? Explain its working with a schematic diagram.
8. Discuss the effect of the following parameters on the break down strength of liquid:
 - a) Hydrastatic pressure
 - b) Solid impurities
 - c) Moisture content in the oil
9. Write short notes on the following :
 - a) Series and shunt compensation in EHV lines
 - b) Thermal breakdown of composite dielectrics.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.