

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER- VI (Old) EXAMINATION – WINTER 2019****Subject Code: 160904****Date: 11/12/2019****Subject Name: High Voltage Engineering****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Describe the working of a Van de Graff generator with a neat sketch. **07**  
(b) How electronegative gas is important in high voltage applications? Explain in Detail with advantages. **07**
- Q.2** (a) Explain with neat diagram the principle of operation of an electrostatic voltmeter. Discuss its advantages and limitations for high voltage measurement. **07**  
(b) What are Treeing and Tracking? Explain clearly the two processes in solid dielectrics. **07**
- OR**
- (b) Explain Corona discharge. **07**
- Q.3** (a) Explain test facilities and testing equipment's in high voltage Laboratories. **07**  
(b) Explain the partial discharge tests for high voltage cables. How fault is located? **07**
- OR**
- Q.3** (a) Mention various types of lightning arrestors and write a comprehensive note on Metal oxide arrestors. **07**  
(b) Define and explain the following terms with necessary figure: **07**  
i) Statistical time lag ii) formative time lag iii) total time lag.
- Q.4** (a) What is Partial discharge of solid insulating material? Explain in detail. **07**  
(b) Describe various factors influencing breakdown in gas. **07**
- OR**
- Q.4** (a) Discuss High voltage Schering Bridge. **07**  
(b) How a sphere gap can be used to measure high voltage? Explain the factor affecting such measurement. **07**
- Q.5** (a) Explain impulse testing of transformers with neat sketch. **07**  
(b) Discuss measurement of dielectric constant and loss tangent of capacitor. **07**
- OR**
- Q.5** (a) Short Notes on Paschen's law for gaseous insulating medium **07**  
(b) Explain various theories for breakdown in commercial liquids. **07**

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