

6E6072

Roll No. _____

Total No of Pages: **3**

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B. Tech. VI-Sem. (Main/Back) Exam., April/May-2016

Electrical Engineering

6EE2A High Voltage Engineering

Time: 3 Hours

Maximum Marks: 80

Min. Passing Marks (Main & Back): 26

Instructions to Candidates:-

Attempt any five questions, selecting one question from each unit. All Questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly.

Units of quantities used/ calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL _____

2. NIL _____

UNIT-I

- Q.1 (a) Classify and explain breakdown mechanism in commercial liquid dielectric. [8]
- (b) What is treeing & tracking? Explain these two phenomenon in solid dielectrics. [8]

OR

- Q.1 (a) What is electronegative gas? Discuss criteria for its breakdown. Why its breakdown strength is higher than other gas? [8]
- (b) Define Townsend's first & second ionization co-efficient. Explain Townsend discharge. [8]

UNIT-II

- Q.2 (a) What are the components of a multistage impulse generator? Draw & explain Marx circuit and modified Marx circuit of multi stage impulse generator. Discuss the difference between Marx and modified Marx circuit [10]
- (b) What is cascaded transformer and explain its working with a diagram. [6]

OR

- Q.2 (a) Explain how a sphere gap can be used to measure the peak value of voltages. What are the parameters & factors that influence such voltages measurements? [8]
- (b) Explain Vande – Graaf generator with schematic diagram. [8]

UNIT-III

- Q.3 (a) Explain the partial discharge phenomenon and draw equivalent circuit for partial discharge phenomenon. [8]
- (b) Give the comparison of wide band and narrow band partial discharge detection circuits. [8]

OR

- Q.3 Explain the high voltage Schering bridge with a neat diagram for the measurement of capacitance. Discuss the applications of high voltage Schering bridge. [16]

UNIT-IV

- Q.4 (a) Describe the mechanism of lightning stroke with neat sketches. [8]
- (b) Discuss the causes of over voltages in details. [8]

OR

- Q.4 (a) Explain the wave equation for a transmission line. [8]
- (b) Explain the factors which are considered in designing of a line based on lightning. [8]

UNIT-V

Q.5 (a) What is the need to use ground wire? State how they are achieved in practice. [8]

(b) Write a short note on coordination of Insulation levels. [8]

OR

Q.5 Classify the lightning arresters and explain each type of lightning arresters with their advantages and limitations. [16]
