

Code No: **R41022**

R10

Set No. 1

IV B.Tech I Semester Supplementary Examinations, October/November- 2019

HIGH VOLTAGE ENGINEERING

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 75

**Answer any FIVE Questions
All Questions carry equal marks**

- 1 Discuss briefly the charge simulation method for solving the field problems and estimation of potential distribution? [15]
- 2 a) Derive the criterion for breakdown in electronegative gases? [8]
b) What are the factors that influence conduction in pure liquid dielectrics and in commercial liquid dielectrics. [7]
- 3 a) Explain the phenomena of treeing and tracking in solid insulating materials under electrical stress. [8]
b) How do moisture and temperature affect the breakdown strength of solid dielectrics? [7]
- 4 Describe with a neat sketch, the working of a van de Graff generator. What are the factors that limit the maximum voltage obtained? [15]
- 5 a) Explain how a sphere gap can be used to measure the peak value of voltages. [8]
b) What are the different types of resistive shunts used for impulse current measurements? [7]
- 6 a) Describe the arrangement for measuring high dissipation factors in the low frequency range. [8]
b) Briefly explain the methods used for calibrating the partial discharge methods. [7]
- 7 a) Mention the significance of power factor tests and partial discharge tests on bushings. [8]
b) With a neat diagram explain one method of measuring RIV of transmission line hardware. [7]
- 8 Explain and its applications of the following
(a) Electro static separator
(b) Electro Static coating [15]