Roll No .....

EX - 7201

B.E. VII Semester

Examination, December 2013

High Voltage Engineering

(Elective)

Time : Three Hours

Maximum Marks : 70

Note : 1. Attempt any five Questions.
2. All Questions carry equal marks.

1. a) Explain the different methods of high current measurement with their relative merits and demerits.
   b) What is the advantage of transmitting electrical power at high voltage and important applications of high voltage?

2. a) Compare Townsend's theory and Steamer's theory of breakdown of gases.
   b) Explain sharply and weakly non-uniform fields and the effect of polarity on breakdown voltage in each case.

3. a) Give different circuits that produce impulse waves explaining clearly their relative merits and demerits.
   b) Why is a Cockcroft-Walton circuit preferred for voltage multiplier circuits? Explain its working with a schematic diagram.

a) Explain how a sphere gap can be used to measure the peak value of voltages. What are the parameters and factors that influence such voltage measurement.
b) Sketch a typical wave shape of switching surges. What are the orders of magnitude and duration of switching surges?

a) Explain the partial discharge tests on high voltage cables. How is a fault in the insulation located in the test?
b) Explain impulse testing of transformer.

a) Explain the scheme for cascade connection of transformer for producing high A.C voltage. Explain its working with a schematic diagram.
b) Explain briefly various theories of breakdown in liquid dielectrics.

a) With a neat diagram explain the principle of operation of a series resonant circuit for generating high a.c test voltages.
b) Explain with neat diagram the principle of operation of an Electrostatic voltmeter. Discuss its advantages and limitations for high voltage measurements.

Write short notes on any three of the following.

a) Capacitance potential dividers
b) Loss angle measurement
c) Ionization energy and Ionization coefficients
d) Multistage impulse generator.

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