Paper Code: EE-021	**Roll No.**										

B.Tech.
(SEM VI) EVEN SEMESTER EXAMINATION, 2015-16
HIGH VOLTAGE ENGINEERING

[Time: 2 hrs.] **[Max. Marks: 50]**

Note:-Attempt All questions.

1. Attempt any four parts of the following: - **[5x4=20]**

(a) What do you mean by Time-Lag? Discuss Streamer's theory of breakdown.
(b) Draw a typical impulse current generator circuit and explain its operation and application.
(c) Draw a neat schematic diagram of a generating voltmeter and explain its principle of operation. Discuss its applications and limitations.
(d) Describe various mechanism of breakdown in liquids and gases.
(e) State and explain Paschen's law.

2. Attempt any two parts of the following: - **[5x2=10]**

(a) What are partial discharges? Differentiate between internal and external discharges.
(b) What is non-destructive testing of insulating materials? Give very briefly the characteristics of these methods.
(c) Draw a neat diagram of a HV Schering bridge and analyse it for a balanced condition.

3. Attempt any two parts of the following: - **[5x2=10]**

(a) Explain the with block schematic diagram, the cathode ray oscillographs for impulse measurements.
(b) Explain the various high voltage tests to be performed in bushings.
(c) Explain the sphere gap method of measuring dc, ac and impulse voltage

4. Attempt any two parts of the following: - **[5x2=10]**

(a) A Cockcroft –Walton type voltage multiplier has eight stages with capacitances equal to 0.05μF. The supply transformer secondary voltage is 125KV at a frequency of 150Hz. If the load current to be supplied is 5mA, find (i) the percentage ripple (ii) the regulation and (iii) the optimum number of stages for minimum regulation of voltage drop.

(b) Explain the phenomenon of corona discharge and breakdown mechanism in non-uniform field.

(c) What do you mean by cascaded transformer? Explain briefly.