

**Code: 9A02705**

B.Tech IV Year I Semester (R09) Regular &amp; Supplementary Examinations December 2015

**HIGH VOLTAGE ENGINEERING**  
(Electrical & Electronics Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions  
All questions carry equal marks

\*\*\*\*\*

- 1 Explain the different applications of high voltages in industries.
- 2 (a) What is Paschen's law? How do you account for the minimum voltage for breakdown under a given 'p x d' condition?  
(b) Explain the phenomena of electrical conduction in liquids. How does it differ from that in gases?
- 3 Explain different mechanisms by which breakdown occurs in solid dielectrics in practice.
- 4 (a) What is the principle of operation of a resonant transformer? How is it advantageous over the cascade connected transformer?  
(b) Why is Cockroft-Walton circuit preferred for voltage multiplier circuits?
- 5 Give different circuits that produce impulse waves explaining clearly their relative merits and demerits.
- 6 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?
- 7 Briefly explain how partial discharges in an insulation system or equipment can be detected and displayed.
- 8 Explain the method of impulse testing of high voltage transformers. What is the procedure adopted for locating the failure?

\*\*\*\*\*