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B.E./B.Tech(Full Time) DEGREE END SEMESTER EXAMINATIONS NOV/ DEC. 2012
COLLEGE OF ENGINEERING GUINDY CAMPUS, ANNA UNIVERISTY, CHENNAI
ELECTRICAL AND ELECTRONICS ENGINEERING BRANCH

Sixth Semester
EE 9352 High Voltage Engineering
(Regulations 2008)

Time: 3 Hours

Max. Marks: 100

Answer ALL questions
PART – A (10 x 2 = 20 Marks)

1. Give the significance of return stroke of a lightning discharge?
2. What are the causes for temporary overvoltage?
3. Electronegative gases are preferred for better insulation. Justify?
4. Give the equivalent circuit for 3 stage cascaded transformer?
5. What is the mechanism of vacuum breakdown?
6. A generating voltmeter has to be designed so that its range is 20 to 20 kV dc. If the indicating meter reads a maximum current of 2 μ A, determine the generating voltmeter capacitance.
7. What are the different resistive shunts used for impulse current measurements?
8. What are the factors affecting the peak voltage measurement by sphere gaps?
9. List the different tests carried out on circuit breakers?
10. What do you mean by 50% impulse flashover voltage and withstand voltage.

PART – B (5 x 16 = 80 Marks)

11. From the Classical gas laws obtain the Paschen's Law for breakdown of gaseous dielectric. (16)
 12. a. Describe, with a neat sketch, the working of a multi stage Cockroft-Walton generator and hence derive an expression for percentage ripple, regulation and optimum number of stages. (16)
- (OR)**
- b. (i). Explain how impulse current is generated in laboratories and thus obtain an expression for maximum output. (16)
13. a. Discuss in detail the different breakdown mechanism of solid dielectrics. (16)
- (OR)**
- b. (i) Explain the different mechanism of cloud charging and discharging (8)
 - (ii) Discuss the various protective schemes employed against switching surges. (8)

14. a. Explain how a high d.c. voltages are measured in laboratories. What are the parameters and factors that influence such voltage measurements? (16)

(OR)

- b. (i) How are mixed potential dividers used for impulse voltage measurements? Explain with neat diagrams. (10)

- (ii) Explain the arrangement used to minimize the errors in the above case. (6)

15. a. Explain with relevant standards the dielectric testing of a 33 kV air break switch. (16)

(OR)

- b. Explain the impulse testing of a 22 kV /400V Distribution transformer according to IS 2026. How are digital techniques used to locate faults. (16)
