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Question Paper Code: 36303

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Sixth Semester

Electrical and Electronics Engineering

01UEE603 - HIGH VOLTAGE ENGINEERING

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. State the parameters and characteristics of lightning strokes.
2. Suggest any three sources that will cause switching surges in power system.
3. What is ionization by collision?
4. Draw cascaded voltage doubler circuit.
5. Write the electrical properties of liquid dielectric.
6. Draw a simple voltage doubler circuit.
7. List various problems involved in high voltage measurement.
8. What is generating voltmeter?
9. Point out the standard specifications of impulse voltage wave.
10. Discuss the significance of 50% flashover voltage in high voltage testing of electrical power apparatus.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Discuss the main causes for power frequency over voltages in power system with necessary diagrams. (8)
- (ii) Explain how over voltages due to switching are controlled? (8)

Or

- (b) Briefly describe the principles observed in the Bewley's lattice diagram. Also draw the lattice diagram. (16)
12. (a) Explain in detail the various mechanism of vacuum breakdown. (16)

Or

- (b) Describe conduction and breakdown in pure liquid. (16)
13. (a) Give the Marx circuit arrangement for multistage impulse generator. How is the basic arrangement modified to accommodate the wave time control resistances? (16)

Or

- (b) Give the Marx circuit arrangement for multistage impulse generator. How is the basic arrangement modified to accommodate the wave time control resistances. (16)
14. (a) With neat sketch explain the principle of operation of an electrostatic voltmeter for HVAC measurement. What are the merits and demerits? (16)

Or

- (b) What is capacitance voltage transformer? Explain with phasor diagram how a tuned capacitance voltage transformer can be used for voltage measurement in power systems. (16)
15. (a) Describe the method of impulse testing of high voltage transformers. What is the procedure adopted for locating the failure? (16)

Or

- (b) What are the significance of short circuit tests on circuit breakers? How are they conducted in HV laboratories? (16)