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Question Paper Code: 31363

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

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. List the sources of switching surges.
3. Define intrinsic electric strength of a solid dielectric.
4. Draw cascaded voltage doubler circuit.
5. Write the electrical properties of liquid dielectric.
6. Draw a simple voltage doubler circuit.
7. State the principle of electrostatic voltmeter.
8. What are the advantages of generating voltmeter?
9. Point out the standard specifications of impulse voltage wave.
10. Draw the waveform of standard impulse with specifications.

PART - B (5 x 16 = 80 Marks)

11. (a) Enumerate the different theories of charge formation in thunder clouds. (16)

Or

(b) Briefly describe the principles observed in the Bewley's lattice diagram. Also draw the lattice diagram. (16)

12. (a) What is electrical avalanche? How do avalanche give rise to an electrical breakdown in case of Townsend's type of discharge. (16)

Or

(b) Discuss the three theories that explain breakdown in commercial liquid dielectrics. (16)

13. (a) Derive the expression for ripple and regulation in cascaded voltage multiplier circuits. (16)

Or

(b) Describe with neat diagram the principle of operation, advantages, limitations and applications of Van de Graaff generator. (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) Discuss the various power frequency and impulse tests on insulators. (16)

Or

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