

B.TECH. ELECTRICAL ENGINEERING (BT ELVI)**Term-End Examination****December, 2012****BIEE-018 : HIGH VOLTAGE ENGINEERING***Time : 3 hours**Maximum Marks : 70**Note : Answer any seven questions.*

1. Explain with neat sketches Cockcroft Walton voltage multipln circuit . Explain its operation when the circuit is
(a) Unloaded (b) loaded. 10
2. Draw a typical impulse current generator circuit and explain its operation and application. 10
3. (a) Draw a neat schematic diagram of a generating voltmeter and explain its principle of operation. 5
(b) A generating voltmeter is required to measure voltage between 15kV to 250kv. If the indicating meter reads a minimum current of $2\mu A$, and maximum of $35\mu A$, determine the capacitance of the generating voltmeter. 5

4. Discuss various capacitance, potential dividers and compare their performance for measurement of impulse voltages. 10

5. Explain briefly various tests to be carried out on a circuit breaker. 10

6. Draw a neat diagram of High Voltage Schering Bridge and analyse it for balanced condition. 10

7. Describe briefly various mechanisms of break down in solid dielectrics. 10

8. (a) Explain clearly suspended particle mechanism of liquid break down. 5
- (b) State and Explain Paschen's Law. 5

9. (a) Define Tounsend's first and second ionisation coefficients and explain Tounsend's criterion for a spark. 5
- (b) A steady current of $600\mu\text{A}$ flows through the plane electrode separated by a distance of 0.5cm when a voltage of 10kV is applied. Determine the Tounsend's first ionisation coefficient of a current of $60\mu\text{A}$ flows when the distance of separation is reduced to 0.1cm and the field is kept constant at the previous value. 5

10. Write short note on *any two* of the following : 5x2=10

- (a) Hall effect generator
 - (b) Partial discharge
 - (c) Treeing and Tracking in solids.
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