

**B.Tech. – VIEP – ELECTRICAL ENGINEERING
(BTELVI)**

Term-End Examination

00573

December, 2016

BIEE-018 : HIGH VOLTAGE ENGINEERING

Time : 3 hours

Maximum Marks : 70

Note : Attempt any **seven** questions. Each question carries equal marks. Use of scientific calculator is permitted.

1. With neat sketches, explain the different schemes for cascade connection of transformers for producing high AC voltages. 10
2. An impulse current generator has a total capacitance of $8 \mu\text{F}$. The charging voltage is 25 kV. If the generator has to give an output current of 10 kA with $8/20 \mu\text{s}$ waveform. Calculate : 10
 - (a) The circuit inductance
 - (b) The dynamic resistance in the circuit
3. What are the advantages of using electrostatic voltmeter for the measurement of high voltage AC ? Explain the working and construction of an electrostatic voltmeter. 10

4. What are the conditions to be satisfied by a potential divider to be used for impulse work ? How is mixed potential divider used for impulse voltage measurement ? 10
5. Explain the different types of tests to be conducted on circuit breakers for high voltage applications. 10
6. Explain the high voltage Schering bridge for the measurement of capacitance and dielectric loss of insulators. 10
7. Describe the current growth phenomenon in a gas subjected to : 10
- (a) Uniform electric field
 - (b) Non-uniform electric field
8. What is thermal breakdown in solid dielectrics ? How is it different from intrinsic breakdown ? 10
9. Write short notes on any **two** of the following : 2×5=10
- (a) Multistage Circuits for Voltage Multiplier
 - (b) Rogowski Coil
 - (c) Townsend's Criterion for Gaseous Dielectrics
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