Printed Pages : 1 **Roll No.** | | | | | | | | | | | **EEE021**

B.TECH.
THEORY EXAMINATION (SEM–VI) 2016-17
HIGH VOLTAGE ENGINEERING

Time : 3 Hours ***Max. Marks : 100***

Note : *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

SECTION-A

1 Explain the following: (10×2=20)

a) Define Gas Law.

b) What do you mean by intrinsic strength of a solid dielectric?

c) What is time lag?

d) What do you understand by ripple voltage?

e) Define flash over and 50% flash over voltage.

f) What is Deltatron circuit?

g) Explain collision cross section.

h) What are the advantages of CVT?

i) Explain the mean free path.

j) What are the limitations of series resistance micro ammeter method?

SECTION-B

2 Attempt any five of the following: (10×5=50)

a) Explain 'electron attachments' why are e^- attaching gases useful for practical use as insulators when compared to non attaching gases.

b) Discuss various factors which affect breakdown of gases.

c) Explain in detail Marx circuit arrangement for multistage impulse generator.

d) Discuss Van de Graff generator with diagram and working.

e) Discuss in detail about Sphere Gap measurements. What are its advantages and limitations for high voltage measurement?

f) Discuss in detail about electrostatic voltmeter. What are its advantages and limitations for high voltage measurement?

g) What is 'stressed oil volume theory' and how does it explain breakdown in large volumes of commercial liquid dielectrics?

h) Discuss various tests earned out for a bushing. Mention the different electrical tests done on isolators and circuit breakers.

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SECTION-C

Attempt any two of the following: (15×2=30)

3. Explain the method of impulse testing of high voltage transformers. What is the procedure adopted for locating the failure?

4. Explain the voltage multiplier circuits. Also explain the cascade connection of transformer for producing very high ac voltages.

5. Discuss method of measuring high impulse currents. Draw a typical impulse current generator circuit and explain its operation and application.