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**Question Paper Code : X 20497**

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020

Seventh Semester

Electrical and Electronics Engineering

EE 6701 – HIGH VOLTAGE ENGINEERING

(Regulations 2013)

(Common to : PTEE 6701 – High Voltage Engineering for B.E. (Part-Time)

Fifth Semester – Electrical and Electronics Engineering – Regulations – 2014)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. What are the causes of over voltages in power system ?
2. List the sources of switching over voltage in power system.
3. Define Paschen's law.
4. Define uniform and non-uniform fields.
5. Distinguish electromagnetic and electrostatic generators.
6. What are called DELTATRON circuits ?
7. What are the advantages of generating voltmeters ?
8. List some advantages of Faraday generator.
9. Define withstand voltage.
10. What is meant by insulation coordination ?

**PART – B****(5×13=65 Marks)**

11. a) Explain the causes of power frequency overvoltage in transmission line.  
(OR)  
b) Write a detailed technical note on reflection and refraction of travelling waves.
12. a) Explain clearly breakdown in vacuum dielectrics.  
(OR)  
b) Explain the breakdown mechanism of liquid dielectrics.
13. a) Explain with neat diagram the generation of high DC voltage using Vande-Graff generator. State the factors which limit the ultimate voltage developed.  
(OR)  
b) Explain the Marx circuit arrangement for multistage impulse generators. How is the basic arrangement modified to accommodate the wave time control resistances ?
14. a) With a neat diagram explain the sphere gap arrangement method of high voltage measurement in detail and give the factors influencing the measurement.  
(OR)  
b) Tabulate and explain the methods used for the measurement of high voltages and high currents.
15. a) Discuss the various tests carried out in a circuit breaker at HV labs.  
(OR)  
b) Explain in sequence the various high voltage test being carried out in a power transformer.

**PART – C****(1×15=15 Marks)**

16. a) Explain the method of determining primary and secondary ionization coefficients with experimental setup.  
(OR)  
b) Draw and explain the modified Marx impulse generator from the basic impulse circuit.
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