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B.E. SEMESTER VI EXAMINATION (MAY-2015)

Subject Code: - EE-604 **Subject Name: - High Voltage Engineering**

Date: - 06/05/2015 **Time: - 10:30am to 1:30pm** **Total Marks: - 70**

Instructions:

1. Answer each section in separate Answer Sheet.
2. Use of scientific calculator is permitted.
3. All questions are **Compulsory.**
4. Indicate **clearly,** the options you attempt along with it's with respective question number.
5. Use the last page of main supplementary of **rough work.**

Section – I

Q.1 **(A)** Explain impulse testing of power transformer with a diagram of set up. 5

(B) Describe with a neat sketch the working of a Van de Graph generator. What are the factors That limit the maximum voltage obtained? 5

(C) Explain resonant transformer for high voltage AC generation. Discuss the advantages and Limitations of it. 5

OR

(C) Draw and explain Marx circuit and modified Marx circuit of multi stage impulse generator. 5

Q.2 **(A)** Explain how a sphere gap can be used to measure the peak value of voltages. What are the Parameters and factors that influence such voltage measurement? 5

(B) Explain with neat diagram the principle of operation of an electrostatic voltmeter. Discuss its Advantages and limitations for high voltage measurement. 5

OR

(A) Explain high voltage test on insulator 5

(B) Write a comprehensive note on metal oxide arrestors 5

Q.3 **(A)** Explain how a sphere gap can be used to measure the peak value of voltages. 5

(B) Write a short note on design and layout of high voltage laboratory. 5

OR

(A) Explain the lightning mechanism including leader and return stroke with appropriate Diagram. 5

(B) Explain Panchen's law with appropriate graphical diagram 5

Section – II

Q.4 (A) Explain various theories of breakdown in solids in brief. 5

(B) Explain Cockcroft Walton circuit for HVDC generation. 5

(C) Explain the set up for measurement of D.C. resistivity. 5

OR

(C) Explain corona discharge. Discuss concept of positive corona and negative corona. 5

Q.5 (A) Explain Thermal breakdown in solid dielectric. 5

(B) Discuss measurement of dielectric constant and loss tangent of capacitor. 5

OR

(A) Explain partial measurement test for insulation quality assessment 5

(B) Draw & explain series capacitor peak voltmeter 5

Q.6 (A) Explain Vacuum Breakdown. 5

(B) Explain potential dividers for impulse voltage measurement by CRO. Suggest arrangement To minimize errors. 5

OR

(A) Write a short note on voltage multiplier circuit. 5

(B) Explain liquid insulation purification system with neat diagram. 5

---------ALL THE BEST---------