Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI EXAMINATION – WINTER 2015

Subject Code:160904 **Date:14/12/ 2015**

Subject Name: High Voltage Engineering

Time:2:30pm to 5:00pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain "Treeing" and "Tracking" clearly the two processes in solid dielectrics.	**07**
	(b)	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?	**07**
Q.2	**(a)**	Explain with neat diagram the principle of operation of an electrostatic voltmeter. Discuss its advantages and limitations for high voltage measurement.	**07**
	(b)	What is meant by insulation co-ordination? How are the protective devices chosen for optimal insulation level in a power system?	**07**
		OR	
	(b)	What is Paschen's law? Explain significance of existence of minimum sparking potential in paschen's curve.	**07**
Q.3	**(a)**	Draw & Explain Marx circuit and Modified Marx circuit of multistage impulse generator. Discuss differences between these two.	**07**
	(b)	Discuss measurement of dielectric constant and loss tangent of capacitor.	**07**
		OR	
Q.3	**(a)**	Explain test facilities and testing equipments in high voltage Laboratories	**07**
	(b)	Explain Tesla coil for producing high frequency high voltages with its derivation of output voltage.	**07**
Q.4	**(a)**	Explain principle, working, advantages & disadvantages of Generating voltmeters.	**07**
	(b)	Explain series capacitor peak voltmeter	**07**
		OR	
Q.4	**(a)**	Discuss High voltage Schering Bridge.	**07**
	(b)	Explain corona discharge.	**07**
Q.5	**(a)**	Explain potential dividers for impulse voltage measurement by CRO. Suggest arrangement to minimize errors.	**07**
	(b)	Explain Purification & Breakdown tests for Liquid Dielectric.	**07**
		OR	
Q.5	**(a)**	Explain the working of Cockcroft-Walton circuit with schematic diagram.	**07**
	(b)	Explain how are switching impulse generated in Laboratory.	**07**

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