## **GUJARAT TECHNOLOGICAL UNIVERSITY** BE - SEMESTER-VI • EXAMINATION – WINTER 2013

Subject Code: 160904Date: 06-12-2013Subject Name: High Voltage EngineeringTime: 02:30 pm to 05:00 pmTotal Marks: 70Instructions:Instructions:Total Marks: 70			
	1. 2.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	State and explain the difference between testing transformer and power transformer.	07
	(b)	Explain electrostatic voltmeter with neat diagram. Also state the governing equation for it.	07
Q.2	(a)	Explain the lightning mechanism including leader and return stroke with appropriate diagram.	07
	(b)	affecting such measurements?	07
		OR	
	(b)	Write a comprehensive note on metal oxide arrestors	07
Q.3	(a) (b)	Explain corona discharges. List out physical and chemical properties of mineral oil. What are the alternative liquid dielectrics used worldwide as replacement of mineral oil? Give their merits and demerits.	07 07
		OR	
Q.3	(a) (b)	Explain Paschen's law with appropriate graphical diagram. Explain various theories of breakdown in solids in brief.	07 07
Q.4	<b>(a)</b>	Explain resonant transformers for high voltage AC generation. Discuss the advantages and limitations of it.	07
	(b)	Explain Cockcroft Walton circuit for HVDC generation. OR	07
Q.4	(a) (b)	Explain various high voltage tests done on power transformers Give design, planning and layout of high voltage laboratory. If possible give brief summary about major high voltage laboratories in India.	07 07
Q.5	(a) (b)	Explain liquid insulation purification system with neat diagram Explain Townsend's first and second ionization coefficient.	07 07
Q.5	(a)	<b>OR</b> Explain the set up for measurement of d.c. resistivity.	07
<b>V</b>	(a) (b)	What is the procedure to measure partial discharge?	07

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