Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - VIth Semester–Examination – May- 2012

Subject code: X 60903

Subject Name: High Voltage Engineering

Date:10/05/2012 **Time: 10:30 am – 01:00 pm**

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)**	Why is controlled triggering required in an impulse generator? Explain typical trigger arrangement.	**07**
	(b)	Explain with diagram Deltatron circuits.	**07**
Q.2	**(a)**	Explain any one method to produce switching surges.	**07**
	(b)	Explain cascaded transformer with a neat diagram.	**07**
		OR	
	(b)	Explain C.V.T with phasor diagram.	**07**
Q.3	**(a)**	Explain how sphere gap can be used to measure peak value of voltages. What are the precautions needed to be taken.	**07**
	(b)	What is a partial discharge? Explain method to measure it with neat diagram.	**07**
		OR	
Q.3	**(a)**	Explain Electrostatic Voltmeters with neat diagram.	**07**
	(b)	Explain schematic arrangement of potential divider to measure impulse voltage by C.R.O.	**07**
Q.4	**(a)**	Explain any three mechanism by which breakdown occurs in solid dielectrics in practice.	**07**
	(b)	Give comparison of townsend's and streamer mechanism.	**07**
		OR	
Q.4	**(a)**	Explain testing of transformer oil with a neat circuit diagram**.**	**07**
	(b)	Explain cavitations and bubble theory for breakdown in commercial liquids.	**07**
Q.5	**(a)**	Discuss various mechanisms of vacuum breakdown.	**07**
	(b)	What is non destructive testing? Explain measurement of dielectric constant and loss factor.	**07**
		OR	
Q.5	**(a)**	Explain impulse testing of transformers.	**07**
	(b)	Determine ripple voltage and regulation of a 8 stage cock-croft Walton type d.c. voltage multiplier having stage capacitance of 0.01 µF, supply voltage is 100 KV at a frequency of 400 HZ and load current is 5mA.	**07**

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