Seat No.:	
No	

Enrolment

GUJARAT TECHNOLOGICAL UNIVERSITY PDDC - SEMESTER-VI • EXAMINATION – SUMMER • 2015

Su Su	bject bject	Code: X60903 Date: 14/05/20	15
Til	me: 1	10:30 am - 01:00 pm Total Marks:	70
	1. 2. 3.	 Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. 	
Q.1	(a)	Name the various theories that explain breakdown in commercial Solid dielectrics. Explain Treeing and Tracking break-down mechanism.	07
	(b)	Give details about cavitations and bubble theory for breakdown in commercial liquids.	07
Q.2	(a)	Make clear about Town-send's criteria for break-down mechanism. Obtain expression for current growth equation with reference to Town-send's first and secondary ionization coefficient.	07
	(b)	What are the drawbacks of Town-send's criteria? How steamer theory will help to improve these drawbacks? Explain in detail with neat diagram OR	07
	(b)	Discuss various mechanisms of vacuum breakdown.	07
Q.3	(a) (b)	Clarify the testing of transformer oil with a neat circuit diagram. Explain in detail about lightning strokes mechanism.	07 07
		OR	
Q.3	(a) (b)	Explain Electric field distribution and stress control. Explain charge Simulation method in detail.	07 07
Q.4	(a)	What are the different methods for generation of HVAC? Explain Resonant transformer methods for generation of HVAC.	07
	(b)	Explain Cockcroft Walton Circuit for generation of HVDC. With required diagram.	07
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Q.4	(a)	How a sphere gap can be used to measure the peak value of voltages explain in detail. What are the parameters and factors that influence such voltage measurement?	U7
	(b)	Explain Capacitor Voltage Transformer for measurement of High Voltage with required vector diagram.	07
Q.5	(a)	Define following terms:(b) Impulse puncture Voltage(a) Impulse flashover Voltage(b) Impulse puncture Voltage(c) Impulse ratio for Flashover(d) Impulse ratio for puncture(e) Standard Impulse Voltage(f) Standard Switching Impulse(g) Wave front and wave tail time(f) Standard Switching Impulse	07
	(b)	Depict the construction, basic principle of operation and application of Marx Circuit for High Voltage Impulse in detail.	07

- Q.5 (a) Give explanation about the principle of operation of an electrostatic voltmeter. 07 Discuss its advantages and limitations for high voltage measurements.
 - (b) Explain the Generation of High voltage D.C. using Van-de Graaff generator with 07 neat sketch.