Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–V • EXAMINATION – SUMMER 2013

Subject Code: X 50904 **Date: 20-05-2013**

Subject Name: Switchgear

Time: 02.30 pm - 05.00 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)**	Discuss the process of initiation of arc in CB switching.	**07**
	(b)	Discuss the properties of arc extinction.	**07**
Q.2	**(a)**	How the arc extinction is done in circuit breaker?	**07**
	(b)	State the duties of circuit breaker.!	**07**
		OR	
	(b)	Explain the symmetrical and asymmetrical breaking capacity of CB in MVA & kA.	**07**
Q.3	**(a)**	With neat sketch explain restriking and recovery voltage of CB.	**07**
	(b)	Discuss the factors affecting restriking and recovery Voltage.	**07**
		OR	
Q.3	**(a)**	A 50 Hz, 11 kV, 3 phase alternator with earthed neutral has a reactance of 5 ohm per phase, and is connected to busbar through a circuit breaker. The capacitance to earth between the alternator and the circuit breaker is 0.02 μF per phase. Assuming the resistance of the generator negligible. Calculate the following (a) Maximum Voltage across contacts of circuit breaker. (b)Frequency of oscillation. (c) The average rate of restriking Voltage up to the first peak	**14**
Q.4	**(a)**	Write down technical notes on Current chopping.	**07**
	(b)	Write down technical notes on Capacitor load switching.	**07**
		OR	
Q.4	**(a)**	Write down technical notes on Vacuum circuit breaker.	**07**
	(b)	Write down technical notes on SF_6 circuit breaker.	**07**
Q.5	**(a)**	Explain HVDC circuit breaker by artificial zero current technique.	**07**
	(b)	Explain shunt resistance switching in CB breaker.	**07**
		OR	
Q.5	**(a)**	With neat circuit diagram explain the circuit for direct testing of CB.	**07**
	(b)	Give comparison of SF_6 circuit breaker and Air blast circuit breaker.	**07**

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