Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC SEM-V Examination-Nov-2011

Subject code: X50904 **Date: 26/11/2011**

Subject Name: Switchgear

Time: 2.30 pm -5.00 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)**	Explain the process of arc formation in circuit breaker. Which are the arc properties?	**07**
	(b)	How arc extinction is done? Discuss the theories of arc extinction in brief.	**07**
Q.2	**(a)**	With neat sketch explain restriking and recovery voltage in circuit breaker.	**07**
	(b)	Discuss the factors affecting restriking voltage in circuit breaker.	**07**
		OR	
	(b)	Discuss with neat diagram, the small inductive current breaking by air blast circuit breaker.	**07**
Q.3	**(a)**	Explain "Interruption of capacitive current".	**07**
	(b)	What is Asynchronous switching?	**07**
		OR	
Q.3	**(a)**	With neat diagram explain resistance switching.	**07**
	(b)	Write a technical note on HVDC circuit breaker.	**07**
Q.4	**(a)**	How the voltage equalization is done in multi break ABCB?	**07**
	(b)	Discuss the merits of SF6 gas as an insulating and arc quenching medium?	**07**
		OR	
Q.4	**(a)**	Which are the different types of tests for circuit breakers?	**07**
	(b)	With neat circuit diagram explain basic set up for short circuit testing of circuit breaker.	**07**
Q.5	**(a)**	Is it possible to replace 11KV, 200MVA (breaking capacity) SF6 circuit breaker by 22KV, 200MVA SF6 circuit breaker? Why?	**07**
	(b)	Find out the natural frequency of transient over voltage when circuit breaker is opened on fault. Assume L = 0.5 Henry and C = 5000 μF. What will be the natural frequency if a 10 KOhm resistance is shunted across contacts of CB in this condition of fault clearing?	**07**
		OR	
Q.5	**(a)**	Discuss "Auto Reclosing".	**07**
	(b)	Write a technical note on "Vacuum Circuit Breaker".	**07**

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