Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – WINTER 2013

Subject Code: 160803 **Date: 02-12-2013**

Subject Name: Switch Gear and Protection

Time: 02:30 pm to 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)**	Explain the principles of Arc Interruption. Define (1) Recovery Voltage (2) RRRV (3) Restriking Voltage	**07**
	(b)	Explain construction and working principle of Air Blast Circuit Breaker.	**07**
Q.2	**(a)**	Draw and Explain Inverse, Very Inverse and Extremely Inverse characteristic of Relay.	**07**
	(b)	Derive the equation for Ratio and Phase angle error of Current Transformer.	**07**
		OR	
	(b)	Derive the necessary equation of Restriking Voltage and RRRV for Circuit Breaker.	**07**
Q.3	**(a)**	Explain construction and working principle of Induction Disc type relay.	**07**
	(b)	Explain Impedance, Reactance and Mho characteristic of Distance Relay.	**07**
		OR	
Q.3	**(a)**	Explain comparison between Static and Electromagnetic Relay.	**07**
	(b)	Explain the faults in Power Transformer.	**07**
Q.4	**(a)**	Why Neutral grounding is required? Explain any two methods of Neutral Grounding.	**07**
	(b)	List out abnormalities of Generator. Explain Inter turn fault protection scheme.	**07**
		OR	
Q.4	**(a)**	Explain the causes of over-voltages in Power System. Explain the working of Zinc Oxide Lightning Arrester.	**07**
	(b)	Explain three zone protection schemes of lines.	**07**
Q.5	**(a)**	Explain Percentage Differential Protection scheme for Transformer.	**07**
	(b)	Explain the properties of SF_6 Gas.	**07**
		OR	
Q.5	**(a)**	Explain construction and working principle of Buchholz relay.	**07**
	(b)	Differentiate between Bulk and Minimum oil circuit breaker.	**07**

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