Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- VIth SEMESTER–EXAMINATION – MAY- 2012

Subject code: 162403 **Date: 15/05/2012**

Subject Name: Switch Gear and Fault Analysis

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.**
4. **Notations used have usual meaning.**

Q.1	**(a)**	Explain basic requirement of protection system. And discuss fault clearing process.	**07**
	(b)	Discuss ratings and specifications of Circuit Breaker.	**07**
Q.2	**(a)**	Explain switching operation of an R-L series circuit with appropriate waveforms.	**07**
	(b)	A short circuit to earth occurs near the terminal of phase A of a three phase alternator, star connected with neutral point earthed, the current to earth being 1000 amps. If the alternator is not supplying any normal current calculate the positive, negative and zero sequence components of currents of all phases.	**07**
		OR	
	(b)	A three phase system has phase voltages given by: Va= 750∟30°, Vb= 900∟-70° and Vc= 1000∟170°. Calculate the symmetrical components.	**07**
Q.3	**(a)**	Write classification of circuit breakers and explain air break circuit breaker with neat diagram.	**07**
	(b)	Explain Zones of protection in power system.	**07**
		OR	
Q.3	**(a)**	Discuss SF6 circuit Breaker with its properties.	**07**
	(b)	Describe electromagnetic attraction relay with its merits and demerits.	**07**
Q.4	**(a)**	Discuss the need of current limiting reactor. At what locations the current limiting reactor is located?	**07**
	(b)	Explain basic principle of distance protection scheme. What are the different types of characteristics of distance protection?	**07**
		OR	
Q.4	**(a)**	Explain single line to ground fault in power system.	**07**
	(b)	Discuss basic components used in static relay.	**07**
Q.5	**(a)**	Describe HRC Fuse and write its applications.	**07**
	(b)	Explain zero current arc interruption theory.	**07**
		OR	
Q.5	**(a)**	Describe Buchholz relay for the protection of transformer.	**07**
	(b)	Explain over current relay with its different characteristics.	**07**

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