Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – SUMMER • 2014

Subject Code: 162403 Date: 23-05-2014

Subject Name: Switchgear 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.**

Q.1	**(a)**	List and explain in brief any seven specifications of a fuse link.	**07**
	(b)	Explain the construction and operation of buchholz relay with a neat diagram.	**07**
Q.2	**(a)**	List different types of isolators and explain the interlocking between an isolator and earthing switch. Also indicate the sequence of operation while closing and opening a circuit with isolators, circuit breakers and earthing switch.	**07**
	(b)	Classify static relays. List down and explain atleast 10 different basic components of the static relay.	**07**
		OR	
	(b)	Compare static relays with electromagnetic relays showing how static relays are better than electromagnetic relays. Give atleast 10 points of comparison.	**07**
Q.3	**(a)**	Define fault. List different types of faults and explain fault clearing process.	**07**
	(b)	Explain different High Resistance interruption mode of Arc Extinction in brief. Also explain the significance of re-striking voltage in arc extinction.	**07**
		OR	
Q.3	**(a)**	Draw a neat figure indicating different protection zones. Explain the requirement for protection system and qualities for a good protection system.	**07**
	(b)	List and explain the physical, chemical and dielectric properties of SF_6 Gas.	**07**
Q.4	**(a)**	Explain the principle of Distance protection and different relays used in it.	**07**
	(b)	Explain Air Blast Circuit Breaker. Draw necessary figure.	**07**
		OR	
Q.4	**(a)**	Derive the equation of Directional Impedance Relay.	**07**
	(b)	Explain Vacuum Circuit Breaker. Draw necessary figure.	**07**
Q.5	**(a)**	Explain Per Unit method of representing quantities. Also state its advantages.	**07**
	(b)	Determine the fault current and fault voltage in case of a single line to ground fault on an unloaded synchronous generator.	**07**
		OR	
Q.5	**(a)**	What is a Current Limiting Reactor? Explain the principle of Current Limiting Reactors giving its advantages. State its types.	**07**
	(b)	Write a note on Sequence Networks.	**07**

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