		GUJARAT TECHNOLOGICAL UNIVERSITY BE SEMESTED VI EXAMINATION SUMMED 2016	
	Subj	ject Code:162403 Date:09/05/2010	6
	Subject Name:Switch Gear & Fault Analysis Time: 10:30 AM to 01:00 PM Total Mar Instructions:		70
		 Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. 	
Q.1	(a)	Define Fuse. Explain High Rupturing Capacity Cartidge fuse. List the advantages and disadvantages of HRC fuse.	07
	(b)	Explain the current interruption in ac circuit breakers. Draw the waveforms of the current and voltage during fault clearing.	07
Q.2	(a) (b)	Explain the function of an isolator. Explain the Pantograph isolator with neat sketch. List the advantages of static relay.	07 07
		OR	
	(b)	Draw the block diagram of simplified static relay and simple microprocessor based digital static relay and explain in brief.	07
Q.3	(a)	Explain the rate of rise of transient recovery voltage and rate of rise of restriking voltage. Derive the equation of the restriking voltage.	07
	(b)	Explain the construction of vacuum interrupter with neat diagram.	07
		OR	
Q.3	(a)	Explain the single pressure puffer type SF_6 circuit breaker with neat diagram. List the advantages and disadvantages of SF_6 circuit breaker.	07
	(b)	Explain the Slepian's theory and Energy Balance theory of the arc interruption.	07
Q.4	(a) (b)	Derive the equation of current for the sudden short circuit in R-L series circuit. Explain the double line to ground fault on an unloaded generator.	07 07
		OR	
Q. 4	(a)	List the types of the reactors used in the power system. Explain the principle of current limiting reactors	07
	(b)	A three-phase, 10000 kVA, 11 kV alternator has a sub-transient reactance of 8%. A three-phase short circuit occurs at its terminals. Determine the fault current and fault MVA.	07
Q.5	(a) (b)	Explain the attracted armature relay with necessary diagram. Explain the principle of circulating current differential protection. List difficulties with it.	07 07
		OR	
Q.5	(a)	Explain the principle of measurement of direction and working of the directional relay.	07
	(b)	Explain the principle of distance protection by R-X diagram and explain the operating characteristics of an impedance relay.	07
