Seat No.: Enrolment No GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-V • EXAMINATION – SUMMER • 2015		
S	ubject code: 150905 Date: 19/05/2015	
	ubject Name: Switchgear	
	Total Marks: 70 nstructions:	
 Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. 		
(a)		07 07
(b)	Explain resistance switching.	U/
(a)	Write short note on merits of SF6 gas as insulating and arc quenching Medium and property of SF6 gas.	07
(b)	A 3-phase alternator has the line voltage of 11 kv. The generator is connected to a circuit breaker. The inductive reactance up to the circuit breaker is 5 ohm per phase. The distributed capacitance up to circuit breaker between phase and neutral is 0.01 μF. determine the following:	07
	(a) Peak resrtriking voltage across the circuit breaker.	
	(b) Frequency of restriking voltage transient.	
	(c) Average rate of restriking voltage up to peak restriking voltage.	
	(d) Maximum R.R.R.V. Neglect first pole to clear factor.	
	OR	
(b)	In a system of 132 kv, the circuit phase to ground capacitance is 0.01 μ F; the series inductance is 6 H. calculate the voltage appearing across the pole of a circuit breaker, if a magnetizing current of 10 Amp is interrupted (instantaneous). Calculate the value of resistance to be used across contact space to eliminate the restriking voltage transient.	07
(a)	Define electrical arc. Also explain low resistance (zero point interruption) method for arc	07
(b)	extinction. Describe with neat sketch Vacuum Circuit Breaker.	07
(~)	OR	•
(a) (b)	Define the term "switchgear" and Explain The Duties of Switchgear. Describe the duty of capacitor switching of a circuit breaker.	07 07
(a) (b)	What is principle of braking DC current and in what respect does it differ from AC? (i) Differentiate between Circuit breaker and Fuse (ii) Differentiate between Circuit breaker and isolators.	07 07

Q.4

OR

- **Q.4** (a) Explain The Construction, Working Principle, Merits and Demerits of Minimum Oil Circuit 07 Breaker.
 - (b) Explain The Construction, Working Principle, Merits and Demerits of Air Break Circuit 07 Breakers.
- (a) What is the important of testing of Circuit Breaker? Describe direct testing method of a **Q.5 07** Circuit Breaker.
 - **(b)** Draw a basic short circuit testing plant of circuit breaker.

Q.1

Q.2

Q.3

Q.3

- (a) Describe the Temperature rise Test and Mechchanical Test (Endurance **Q.5** 07 Test) of HVAC Circuit Breaker.
 - (b) Explain Synthetic testing of Circuit Breaker & its limitation.

07

07
