Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY BE- Vth SEMESTER-EXAMINATION - MAY/JUNE - 2012

Subject code: 150905 Date: 06/06/2012 **Subject Name: Switchgear** Time: 02:30 pm - 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. (a) Explain the factors affecting the instantaneous value of recovery voltage at the 07 0.1 instant of final current zero. **(b)** Describe in detail the ratings of a circuit breaker. 07 (a) Write a short note on current chopping. 0.2 **07 (b)** Describe the duty of capacitor switching of a circuit breaker. 07 **(b)** Explain the methods of increasing arc resistance. **07** Q.3(a) A 50 Hz, 11 kV, three-phase alternator with earthed neutral has a reactance of 5 07 ohms per phase, and is connected to busbar through a circuit breaker. The capacitance to earth between the alternator and the circuit breaker is 0.02 µF per phase. Assuming the resistance of the generator to be negligible calculate the (a) Maximum voltage across the contacts of the circuit breaker. (b) Frequency of oscillations and (c) The average rate of rise of restriking voltage up to the first peak. **(b)** Write a short note on minimum oil circuit breaker. **07** (a) Write a short note on factors affecting performance of air blast circuit breaker. 07 Q.3Describe the desired properties of a vacuum circuit breaker contact material. **(b)** 07 (a) Write the dielectric properties and arc quenching properties of SF₆ gas. 07 0.4 **(b)** Write a short note on HVDC circuit breaker. 07 0.4 (a) Write a short note on selection of type of circuit breaker. 07 **(b)** Describe in brief the physics of arc phenomenon. 07 (a) Explain low resistance arc interruption theory. 07 Q.5**(b)** Write a short note on the properties of oil used for circuit breaker. 07 (a) Describe characteristics of restriking voltage across circuit breaker. 0.5 **07** Write a short note on indirect testing of circuit breaker. 07
