Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEM - III EXAMINATION – WINTER 2014

Subject Name: Electrical Machines and Electronics		Code: 2130105 Date: 01/01/201	Date: 01/01/2015 Total Marks: 70	
Inst	2.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.		
Q.1	(a)	With the help of a neat diagram explain the operation of a D. C. Generator.	07	
	(b)	Explain working principle of a single phase transformer. Mention its use.	07	
Q.2	(a)	Armature of a 6pole generator has 120 slots each carrying 60 conductors (lap wound). Flux developed per pole is 0.02 Wb. If rpm of generator is 1000, find emf generated.	07	
	(b)	Explain (any two) of the following terms of a 3phase induction motor: (i) Cu loss (ii) Iron loss (iii) efficiency OR	07	
	(b)	What is CT and PT? Explain how they are utilized in monitoring electrical parameters of a supply system.	07	
Q.3	(a)	Compare between Indoor and Outdoor substations.	07	
	(b)	Explain the working principle of a squirrel cage motor. Mention its applications.	07	
Q.3	(a) (b)	OR State and prove De-Morgan's theorems. Mention the components and their utilization of any substation.	07 07	
Q.4	(a)	Give comparison between A.C and D.C power transmission. Which type is	07	
	(b)	mostly used in our country? What is Power Factor? Discuss the effect of low power factor and mention their improvement methods. OR	07	
Q.4	(a)	Why a starter is necessary in a D.C shunt motor? Draw a neat diagram of a 3point starter (no explanation necessary).	07	
	(b)	What is tariff? Explain how it is determined.	07	
Q.5	(a)	What are logic gates? Explain the following (any three): (i) OR (ii) NOR (iii) AND (iv) NAND	07	
	(b)	Draw a circuit diagram and explain a two stage transistor amplifier. OR	07	
Q.5	(a) (b)	Draw and briefly mention internal architecture of 8085 microprocessor. What is OP-AMP? Mention its ideal characteristics and used.	07 07	
