Seat No.: \_\_\_\_\_

## **GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER- III EXAMINATION – SUMMER 2015**

Subject Code: 131901 Date: 11/06			2015 s: 70	
Subject Name: Electrical Machines and Electronics Time: 02.30pm-05.00pm Total Marks				
Ins	1 2 3	ions: . Attempt all questions. . Make suitable assumptions wherever necessary. . Figures to the right indicate full marks.		
Q.1	(a)	Draw and explain open circuit and external characteristics of D.C. shunt generator.	07	
	(b)	Draw and explain torque-speed characteristic of 3-phase induction motor.	07	
Q.2	(a) (b)	State methods of speed control of D.C. shunt motor. Explain any one in detail. List starters used for 3-phase induction motor. Explain any one in detail. OR	07 07	
	(b)	An 8-pole d.c. shunt generator with 778 wave connected armature conductors running at 500 r.p.m. supplies a load of $12.5\Omega$ resistance at voltage of 250V. The armature resistance and field resistance are $0.24\Omega$ and $250\Omega$ respectively. Calculate armature current, induced e.m.f. and flux/pole.	07	
Q.3	(a) (b)	Explain working of capacitor start capacitor run 1-phase induction motor. State conditions for parallel operation of two alternators. Explain any one method of synchronizing.	07 07	
Q.3	(a) (b)	OR Explain working principle of transformer. Also explain function of oil conservator and breather. Draw and explain torque-armature current characteristic of D C, series motor	07 07	
0.4	(0)	What is touiff 2 Explain different types of toriff	07	
Q.4	(a) (b)	State causes of low power factor. Explain how static capacitor improves power factor.	07 07	
0.4	(a)	OR Cive comparision between D.C. and A.C. transmission system	07	
Q.4	(a) (b)	Explain function of equipments used in substation.	07	
Q.5	(a) (b)	Explain half wave and full wave rectifier. Draw symbol and truth table for NAND, OR gate. Explain De-morgan's theorem.	07 07	
		OR		
Q.5	(a)	Explain use of instrument transformers for voltage, current and power measurement.	07	
	(b)	Draw block diagram of 8085 microprocessor and explain in brief.	07	

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