

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III (NEW) EXAMINATION – SUMMER 2019

Subject Code: 2130105

Date: 11/06/2019

Subject Name: Electrical Machines & Electronics

Time: 02:30 PM TO 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.

		MARKS
Q.1	(a) Mention all parts of D.C. generator.	03
	(b) Explain working principle and construction of single phase transformer.	04
	(c) Write different speed control method for D.C. shunt motor. Explain any one of them.	07
Q.2	(a) Draw and explain the rotor construction of 3-phase squirrel cage induction motor.	03
	(b) Draw and explain salient pole and cylindrical rotor used in an alternator.	04
	(c) Draw and explain the Torque-Armature current, Speed-Armature current and Speed-Torque characteristics of D.C. series motor.	07
	OR	
	(c) Explain the double field revolving theory.	07
Q.3	(a) Mention all methods to self-start 1-phase Induction motor.	03
	(b) Draw and explain open circuit characteristics of D.C. shunt generator.	04
	(c) Write different starters used for 3-phase induction motor. Explain any one of them.	07
	OR	
Q.3	(a) Mention all necessary condition for parallel operation and synchronization of alternator.	03
	(b) Explain the difference between core type and shell type transformer.	04
	(c) Explain internal and external characteristic of DC generator.	07
Q.4	(a) Explain the advantage of high voltage transmission.	03
	(b) With diagram explain typical layout of AC supply scheme.	04
	(c) What is tariff? Explain it's types.	07
	OR	
Q.4	(a) Explain Importance of Power factor improvement.	03
	(b) Draw Key diagram of 66/11 KV substations.	04
	(c) What is sub-station? Explain the classification of sub-station.	07
Q.5	(a) Explain merits and demerits of underground system for electric supply.	03
	(b) Explain De-Morgan's theorem	04
	(c) Draw truth table of AND, OR, NOT, NAND, NOR, EX-OR, EX-NOR gate along with its symbols.	07
	OR	
Q.5	(a) Draw and explain pin diagram of IC 741 OPAM.	03
	(b) Draw the pin diagram of 8085.	04
	(c) Explain full wave rectifier in detail with the help of circuit diagram and waveforms.	07