Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (Old) EXAMINATION – WINTER 2019

Subject Code: 131701 **Date: 03/12/2019**

Subject Name: Electrical Machines

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.**

Q.1	**(a)**	Derive an equation for induced EMF of transformer and explain significance of transformation ratio	**07**
	(b)	Explain open-circuit and short circuit test on single phase transformer.	**07**
Q.2	**(a)**	Explain condition for parallel operation of two three-phase transformers.	**07**
	(b)	Explain three-phase to two phase conversion using transformer.	**07**
		OR	
	(b)	Explain V-V connection of three phase transformer.	**07**
Q.3	**(a)**	Explain torque-speed characteristics of three phase induction motor.	**07**
	(b)	Derive an equation for starting torque and running torque of three phase induction motor	**07**
		OR	
Q.3	**(a)**	Write different starter used for three phase induction motor and explain any one.	**07**
	(b)	Explain chording factor and distribution factor for alternator.	**07**
Q.4	**(a)**	Draw vector diagram of loaded alternator with different power factor.	**07**
	(b)	Explain power stages and losses of three phase induction motor.	**07**
		OR	
Q.4	**(a)**	On what bases DC generators are classified? Classify and explain DC generators.	**07**
	(b)	Write short note on Armature Reaction in DC generators.	**07**
Q.5	**(a)**	Explain different characteristics of Dc shunt generator.	**07**
	(b)	Explain different methods of starting single phase induction motor.	**07**
		OR	
Q.5	**(a)**	Explain ward-Leonard method of speed control of DC shunt motor	**07**
	(b)	Write short note on autotransformer.	**07**

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