Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) EXAMINATION – WINTER 2022

Subject Code:3150910 Date:06-01-2023

Subject Name:Electrical Machine- II

Time:10:30 AM TO 01:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Explain the working principle of 3 phase induction motor.	**03**
	(b)	With neat diagram explain construction of 3 phase induction motor.	**04**
	(c)	Give comparison between 3 phase squirrel cage and slip ring induction motor.	**07**
Q.2	**(a)**	Give comparison between salient pole and cylindrical type alternator.	**03**
	(b)	Explain armature reaction of alternator.	**04**
	(c)	Explain synchronous impedance method of alternator.	**07**
		OR	
	(c)	With diagram explain star-delta starter of 3 phase induction motor.	**07**
Q.3	**(a)**	Derive the EMF equation of an alternator.	**03**
	(b)	Define pitch factor and distribution factor of alternator.	**04**
	(c)	Explain no load and blocked rotor test on a three phase induction motor.	**07**
		OR	
Q.3	**(a)**	Give condition for parallel operation of alternator with bus bar.	**03**
	(b)	With diagram explain torque-slip characteristics of an induction motor.	**04**
	(c)	Explain V curves and inverted V curves for synchronous motor.	**07**
Q.4	**(a)**	Draw power stages of an induction motor	**03**
	(b)	Explain capacitor start induction run motor.	**04**
	(c)	What is synchronization? Explain two bright and one dark lamp method of synchronization of 3 phase alternators.	**07**
		OR	
Q.4	**(a)**	Why 1 phase induction motor is not self starting?	**03**
	(b)	Write a short note on double cage induction motor	**04**
	(c)	Write a short note on shaded pole single phase motor.	**07**
Q.5	**(a)**	Explain synchronous condenser.	**03**
	(b)	State advantages and applications of linear induction motor	**04**
	(c)	Explain method of starting of synchronous motor.	**07**
		OR	
Q.5	**(a)**	Discuss working of repulsion motor.	**03**
	(b)	Explain principle and operation of auto synchronous motor.	**04**
	(c)	Explain construction, working and applications of permanent magnet brushless DC motor.	**07**

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