Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V EXAMINATION – SUMMER 2025

Subject Code:3150910 Date:15-05-2025

Subject Name:Electrical Machine- II

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.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Why single phase induction motor is not self starting?	**03**
	(b)	Derive EMF equation of Alternator.	**04**
	(c)	Draw and explain torque-slip characteristics of 3 phase induction motor.	**07**
Q.2	**(a)**	Explain the working principle of Induction generator.	**03**
	(b)	Explain the double field revolving theory of single-phase induction motor.	**04**
	(c)	State the methods of starting of synchronous motor and explain any one of them.	**07**
		OR	
	(c)	Explain speed control method of 3 phase induction motor.	**07**
Q.3	**(a)**	Explain the working principle of 3 phase induction motor.	**03**
	(b)	Write a short note on double cage induction motor.	**04**
	(c)	With diagram explain star-delta starter of 3 phase induction motor.	**07**
		OR	
Q.3	**(a)**	Explain crawling and cogging in induction motor.	**03**
	(b)	Give comparison of squirrel cage and wound rotor motor.	**04**
	(c)	Explain no load and block rotor test of 3 phase induction motor.	**07**
Q.4	**(a)**	Give comparison between salient pole and cylindrical type alternator.	**03**
	(b)	Explain armature reaction phenomena in case of synchronous machine.	**04**
	(c)	What is regulation of alternator? Explain ZPF method for finding regulation in alternator.	**07**
		OR	
Q.4	**(a)**	Give condition for parallel operation of alternator with bus bar.	**03**
	(b)	Define the pitch factor and distribution factor for synchronous generator.	**04**
	(c)	Draw and explain V-Curve of synchronous motor.	**07**
Q.5	**(a)**	Explain Synchronous condenser.	**03**
	(b)	Explain principle and operation of auto synchronous motor.	**04**
	(c)	Write a short note on universal motor.	**07**
		OR	
Q.5	**(a)**	State advantages and applications of linear induction motor.	**03**
	(b)	Explain working of capacitor start capacitor run single phase motor.	**04**
	(c)	What is synchronization? Explain two bright and one dark lamp method of synchronization of 3 phase alternator.	**07**

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