Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

Diploma Engineering, Mid semester Examination

Semester: 4 **Date: 19/01/2023**

Subject Code: 03607253 **Time: 7:50AM TO 9:20AM**

Subject Name: Induction, Synchronous and Electrical Machines **Total Marks: 40**

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is considered to be Authentic.

Q.1	Answer any six out of Ten. (2 Marks Each)	(12)	Co/Po Name	Blooms Taxonomy Words
	1. State the function of starter		Co1	Knowledge
	2. Define synchronous speed & slip.		Co1	Knowledge
	3. State various losses found in induction motor		Co1	Knowledge
	4. Define pitch factor and distribution factor		Co3	Apply
	5. State the different methods of determining voltage regulation in alternator		Co3	Knowledge
	6. State the factors affecting the value of generated emf of alternator?		Co3	Understand
	7. State the types of alternators according to rotor construction.		Co1	Understand
	8. Sketch V-curve for synchronous motor		Co1	Application
	9. State application of synchronous motor		Co1	Knowledge
	10. Explain armature reaction in alternator		Co1	Apply
Q.2	A). Explain the construction of a three-phase squirrel cage induction motor	(03)	Co1	Understand
	OR			
	A) Explain the construction of a three-phase slip ring induction motor	(03)	Co1	Understand
	B) Explain various applications of 3-Phase Induction motors?	(03)	Co1	Understand
	OR			
	B) State the advantages of keeping the armature system stationary in alternator?	(03)	Co3	Understand
	C) State the methods of speed control of 3-phase induction motors. Explain any one?	(04)	Co1	Understand
	OR			
	C) Derive the E.M.F. equation of alternator?	(04)	Co3	Apply
	D) Give comparison of squirrel cage type and slip ring type induction motor?	(04)	Co1	Understand
Q.3	A) Explain the operating principle of an alternator?	(03)	Co1	Understand
	OR			
	A) Define voltage regulation of alternators. State methods to find voltage regulation	(03)	Co3	Understand
	B) Explain Why starter is needed for 3 Φ induction motor. Explain the D.O.L Starter of 3- phase induction motor?	(03)	Co1	Create
	OR			
	B) Draw and Explain the Torque-Slip characteristics of an Induction motor?	(03)	Co1	Create
	C) Explain the maintenance of Three Phase induction motors?	(04)	Co1	Understand
	OR			
	C) A 4 pole, 5 h.p., 50 Hz three phase induction motor rotates at 1430 rpm at full load when connected to 440 V supply. Find the percentage slip of the motor?	(04)	Co1	Apply
	D) Explain the essential difference between smooth cylindrical and salient pole rotors used in alternators?	(04)	Co3	Understand

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	ડી) આકૃતિ સાથે LVDT સાથે બેલોઝનું સંયોજન સમજાવો.	**(૦૪)**