Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– II • EXAMINATION – SUMMER 2017

Subject Code: 2724504 **Date:29/05/2017**

Subject Name: Advance 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)**	Explain in brief the working principle of multi stack VR stepper motor with diagram.	**07**
	(b)	Draw and explain equivalent circuit of BLDC machine with equation.	**07**
Q.2	**(a)**	Discuss unipolar type converters used to control BLDC motor	**07**
	(b)	Compare between outer rotor and inner rotor BLDC motor.	**07**
		OR	
	(b)	Give the comparison between the axial and radial permanent magnet motors.	**07**
Q.3	**(a)**	Explain the construction and working principle of Permanent Magnet (PM) Stepper Motor with suitable diagram. State their applications.	**07**
	(b)	Explain torque angle characteristic of stepper motor.	**07**
		OR	
Q.3	**(a)**	Explain working of variable slip wind turbine Generator with diagram.	**07**
	(b)	Compare VR, Permanent magnet and Hybrid stepper motor.	**07**
Q.4	**(a)**	Explain working of Doubly Fed Induction Generator (DFIG) with diagram.	**07**
	(b)	Explain principle, construction and working of Permanent Magnet AC motor.	**07**
		OR	
Q.4	**(a)**	Discuss the construction and working of a linear induction motor. Compare the conventional induction motor and linear induction motor.	**07**
	(b)	Explain principle, construction and working of Permanent Magnet DC motor.	**07**
Q.5	**(a)**	With proper diagram explains the working of Bifilar type converter used for Switched Reluctance Motor (S.R.M.)	**07**
	(b)	Explain relationship between inductance and rotor position in Switched Reluctance Motor (S.R.M.).	**07**
		OR	
Q.5	**(a)**	Explain Asymmetric bridge type converter used for Switched Reluctance Motor (S.R.M.).	**07**
	(b)	Explain electromechanical conversion in Switched Reluctance Motor (S.R.M.) with equation.	**07**

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