Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER–II EXAMINATION – SUMMER 2015

Subject Code: 2724504 **Date: 30/05/2015**

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)**	With the help of diagram explain the construction and working of a Brushless DC motor. State its applications.	**07**
	(b)	Draw and explain equivalent circuit of BLDC machine with equation.	**07**
Q.2	**(a)**	Discuss bi-polar type converters used to control BLDC motor.	**07**
	(b)	Compare Brushless DC with conventional DC Motor. Also explain axial flux and radial flux permanent magnet BLDC motor.	**07**
		OR	
	(b)	Discuss converter fed BLDC drive. Discuss its performance for 120° conduction period.	**07**
Q.3	**(a)**	Explain in brief construction and working of Variable Reluctance (V.R.) stepper motor.	**07**
	(b)	Explain torque angle characteristic of stepper motor.	**07**
		OR	
Q.3	**(a)**	Explain micro stepping control of stepper motor.	**07**
	(b)	Explain in brief construction and working of Permanent Magnet (P.M.) stepper motor.	**07**
Q.4	**(a)**	Explain electromechanical conversion in Switched Reluctance Motor (S.R.M.) with equation.	**07**
	(b)	With proper diagram explains the working of Bifilar type converter used for Switched Reluctance Motor (S.R.M.).	**07**
		OR	
Q.4	**(a)**	Explain Asymmetric bridge 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**
Q.5	**(a)**	Discuss the construction and working of a linear induction motor. Compare the conventional induction motor and linear induction motor.	**07**
	(b)	Explain working of variable slip wind turbine Generator with diagram.	**07**
		OR	
Q.5	**(a)**	Explain construction and working of A.C. Series motor with diagram. Also explain principle of Hysteresis motor.	**07**
	(b)	Explain working of Double Fed Induction Generator (DFIG) with diagram.	**07**

****