1T00836 - T.E.(Electrical Engineering)(SEM-VI)(Choice Base Credit Grading System) (R- 19) ('C' Scheme) / 89305 - Special Electrical Machine (DLOC)

QP CODE: 10037703 DATE: 20/12/2023

Duration: (3 Hours) **Total Marks: 80**

NB: (1) Question **No. 1** is **compulsory**
(2) **Answer** any **THREE** questions out of the remaining **FIVE** questions.
(3) Assume suitable data if **necessary** and **justify** them
(4) **Figure** to the **right** indicates **marks**

1.	(a)	Explain briefly open loop speed control of stepper motor.	5
	(b)	Describe the closed loop control of switched reluctance motor.	5
	(c)	Explain the working principle of PMBLDC motor.	5
	(d)	Derive the expression for torque in synchronous reluctance motor.	5
2.	(a)	Describe power converter circuit of stepper motor with neat sketch.	10
	(b)	Summarize the various applications of stepper motor.	10
3.	(a)	Describe power converters used for the control of switched reluctance motor with neat sketches.	10
	(b)	Explain sensorless control of switched reluctance motor.	10
4.	(a)	Explain the working principle of PMBLDC motor and compare conventional DC motor and PMBLDC motor.	10
	(b)	Describe the open loop speed control scheme of a PMBLDC motor drive with position sensing.	10
5.	(a)	Explain the constructional details and working principle of PMSM.	10
	(b)	Illustrate the control strategies of permanent magnet synchronous machine.	10
6.	(a)	Describe fast torque response control in synchronous reluctance motor.	10
	(b)	Demonstrate the working principle of linear induction motor. Also state the applications.	10

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