CMR INSTITUTE OF TECHNOLOGY

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Internal Assesment Test - I

Sub:	Special Electrical Machines					Code:	15EE554
Date:	08/09/2018	Duration:	90 mins	Max Marks: 50	Sem: 5	Branch:	EEE

Answer Any FIVE FULL Questions

		Marks	OBE CO	OBE RBT
1a	Draw and explain the structure of multi-stack variable reluctance stepper motor	[5]	CO1	L2
1b	Derive the torque equation of stepper motor	[5]	CO2	L2
2a	A five-phase stepper motor has 40 rotor teeth. It drives a lead screw having a pitch of 5 threads per cm. The lead screw in turn produces a linear motion of a cutting tool. The input pulse is applied 10 times. Find the distance covered by the cutting tool.	[5]	CO3	L3
2b	Distinguish between Variable reluctance stepper motor and Permanent magnet stepper motor	[5]	CO1	L2
3	Explain L-θ profile of Switched reluctance motor (SRM) and constraints on Pole Arc and Tooth Arc of the same	[10]	CO1	L2

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4	With a block diagram and flow chart, explain the open loop control of stepper motor	[10]	CO3	L2
5a	Explain the dynamic characteristics of stepper motor.	[4]	CO2	L2
5b	With a neat sketch, explain the current regulators used for Switched reluctance motor	[6]	CO3	L2
6	With a block diagram and flow chart, explain the microprocessor based control of SRM.	[10]	CO3	L2