Reg. No. : | | | | | | | | | | | | |

Question Paper Code:

M.E. DEGREE EXAMINATION,APRIL 2024

Second Semester

Power Electronics and Drives

21PPE503 –CONTROL OF SPECIAL ELECTRICAL MACHINES

(Regulations 2021)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1.	(a)	Explain the static and dynamic characteristics of a VR stepper motor with various specifications in them.	CO1-U	(20)
		Or		
	(b)	With a neat sketch explain the various driver circuits of VR stepper motor.	CO1-U	(20)
2.	(a)	Explain in detail about (i) Self-control (ii) Vector control schemes of permanent magnet synchronous motor.	CO2-U	(20)
		Or		
	(b)	Describe the constructional features of axial and radial flux synchronous reluctance motors.	CO2-U	(20)
3.	(a)	Describe the various converter topologies for a 3 phase switched reluctance motor with merits and demerits of each. Explain any three of them	CO3-App	(20)
		Or		
	(b)	Describe the following: (i) Role of microprocessors in control of switched reluctance motor (ii) (ii) Sensorless operation	CO3-App	(20)

4.	(a)	Sketch the structure of power controller for PMBLDC motor & Explain thefunctions of each block	CO4-U	(20)
		Or		
	(b)	Derive the Torque and EMF equation of the PMBLDC motor	CO4-U	(20)
5.	(a)	Investigate the performance of the Linear synchronous motor with its equations	CO5-U	(20)
		Or		
	(b)	Summarize the constructional details, principle of operation and the application of DCLM	CO5-U	(20)