E **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 52003

M.E. DEGREE EXAMINATION, MAY 2018

Second Semester

Power Electronics and Drives

15PPE203 – AC DRIVES AND CONTROL

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1.	(a)	(i) Explain the principle of v/f control in induction motor drives.	CO1- U	(8)
		(ii) Draw the slip –Torque characteristics of 3 phase Induction Motor.	CO1- U	(8)
		(iii) State the various speed control methods of induction motor.	CO1- U	(4)
		Or		
	(b)	(i) Explain about stator voltage control of induction motor drive System.	CO1- U	(10)
		(ii) Explain about torque production in Induction motor.	CO1- U	(10)
2.	(a)	(i) Explain the operation of six pulse VSI and CSI fed IM drive.	CO2- U	(10)
		(ii) Draw the control and power schematics of the volts/Hz drive that uses a PWM Inverter.	CO2- U	(10)
		Or		
	(b)	(i) Explain in detail about four quadrant control and closed loop operation of AC voltage Controllers.	CO2- U	(15)
		(ii) State the disadvantages of ac voltage controllers.	CO1- U	(5)
3.	(a)	(i) Draw the schematic of static scherbius drive and explain its operation.	CO3- U	(12)
		(ii) Explain about power factor considerations modified Kramer drives.	CO3- U	(8)
		Or		

	(b)	(i) Explain about power factor consideration in static scherbius drive system.	CO3- U	(12)
		(ii) Analyze equivalent circuit of static static scherbius drive system.	CO3- Ana	(8)
4.	(a)	(i) Write briefly about Flux vector estimation method.	CO4- U	(12)
		(ii) Explain about indirect feed forward vector control.	CO4- U	(8)
		Or		
	(b)	(i) Explain about DC drive analogy.	CO4- U	(10)
		(ii) Explain the control strategy of DTC.	CO4- U	(10)
5.	(a)	Develop the equivalent circuit of a wound field cylindrical rotor synchronous motor also derive the performance equations of the drive.	CO5-App	(20)
		Or		
	(b)	(i) Explain about control of load commutated synchronous motor drive.	CO5-U	(12)
		(ii) Explain about speed control of synchronous motor drive.	CO5-U	(8)