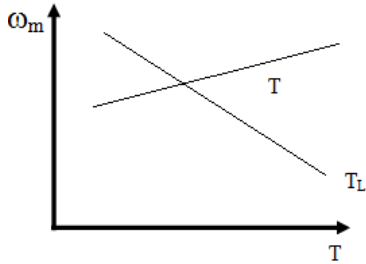


THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025****Fifth Semester****Electrical and Electronics Engineering****EE3012 – Electrical Drives****Regulations - 2021****Duration : 3 Hrs****Maximum : 100 Marks****PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BLT	CO	Marks
1.	What are the advantages of group drive over individual drive?	L1	1	2
2.	Comment on the stability of the given speed torque characteristics.	L2	1	2
				
3.	What is the difference between continuous and discontinuous conduction modes?	L1	2	2
4.	Calculate the T_{on} Period of frequency 100 Hz with 20%, 80% duty cycle.	L2	2	2
5.	List the different methods of speed control of IM?	L1	3	2
6.	Compare VSI and CSI fed drive.	L2	3	2
7.	Write the applications of PMSM.	L1	4	2
8.	How the machine operation is performed in self-controlled mode?	L2	4	2
9.	Recall the advantage of using simulation software and list the simulation software?	L1	5	2
10.	How is speed feedback achieved in speed controller design?	L2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11.	a Explain the multi-quadrant operation in detail.	L2	1	16
	Or			
	b i Contrast the mathematical condition for steady state stability analysis of equilibrium operating point.	L2	1	8
	ii Draw and describe the load torque characteristics of various drives.	L2	1	8
12.	a Explain the operation of single phase fully-controlled converter fed dc separately excited motor in continuous and discontinuous modes of operation with necessary waveforms and steady state analysis.	L2	2	16
	Or			

	b	Discuss the four-quadrant operation of chopper fed drive.	L2	2	16	
13.	a	i	Interpret the stator voltage control of induction motor drives.	L2	3	6
		ii	With necessary sketch, explain the field weakening mode control of induction motor drives.	L2	3	10
			Or			
	b	Explain the speed control scheme of induction motor with V/F control.	L2	3	16	
14.	a	i	Explain power factor control of synchronous motor drive.	L2	4	8
		ii	Summarize the open loop v/f speed control of permanent magnet synchronous motor in detail.	L2	4	8
			Or			
	b	i	Outline the concept of self-controlled synchronous motor drive.	L2	4	6
		ii	Explain self-control of synchronous motor drive operated with constant margin angle control.	L2	4	10
15.	a	i	Explain in detail the design of current controller of closed loop speed control system of DC separately excited motor.	L2	5	8
		ii	Explain the closed loop operation of armature voltage control method in detail with sketch.	L2	5	8
			Or			
	b	i	Derive the transfer function of the DC motor and load system.	L2	5	8
		ii	Discuss the converter selection and characteristics for electric drive.	L2	5	8