Question Paper Code: EE622PE

R22

Model Question Paper
ANURAG Engineering College
(An Autonomous Institution)
III B.Tech. II Semester Regular Examinations, June -2025
POWER SEMICONDUCTOR DRIVES
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3 Hours **Max.Marks:60**

Section – A (Short Answer type questions)				**(10 Marks)**
Answer All Questions		**Course Outcome**	**B.T Level**	**Marks**
1.	Define electric drive?	CO1	L1	1M
2.	Mention various types of power converters?	CO1	L2	1M
3.	Write any two differences between mechanical and electrical braking?	CO2	L1	1M
4.	What are the different types of control strategies in a D.C chopper?	CO2	L1	1M
5.	What is meant by V/F control?	CO3	L2	1M
6.	Differentiate VSI and CSI?	CO3	L2	1M
7.	Name the rotor resistance control methods in induction motor?	CO4	L1	1M
8.	What are the advantages of static Kramer drive?	CO4	L2	1M
9.	What are different modes employed to obtain variable frequency control of synchronous motor drive?	CO5	L2	1M
10.	What is load commutation?	CO5	L1	1M
Section B (Essay Questions)				
Answer all questions, each question carries equal marks.				**(5 X10M = 50M)**
11.	Explain Single Phase fully controlled converter fed d.c separately excited motor and draw the output voltage and current wave forms, Speed and Torque expressions	CO1	L3	10M
	OR			
12.	Explain Three Phase semi controlled converters connected to d.c separately excited motor and draw the output voltage current wave forms, Speed and Torque expressions ,Speed – Torque characteristics	CO1	L3	10M
13.	Explain about the following electric breaking methods. i) Regenerative braking ii) Dynamic or rheostatic braking iii) Plugging	CO2	L2	 4M 3M 3M
	OR			
14.	A 220V, 24A, 1000rpm, separately excited DC motor having an armature resistance of 2Ω is controlled by a chopper. The chopping frequency is 500Hz and the input voltage is 230V. Calculate the duty ratio for a motor torque of 1.2 times rated torque at 500rpm	CO2	L3	10M
15.	Draw a block schematic diagram for automatic speed control of three phase case induction motor using solid state AC voltage controller on starter side.	CO3	L3	10M

	OR			
16.	Explain with suitable block diagrams the various types of VSI-controlled Induction motor drive?	CO3	L2	10M
17.	Explain briefly about the static scherbius system for speed control of slip ring induction motor drive?	CO4	L3	10M
	OR			
18.	Draw and explain a closed loop operation for a static Kramer controlled drive?	CO4	L3	10M
19.	Describe the open loop method of speed control of synchronous motor drive.	CO5	L3	10M
	OR			
20.	Describe separate controlled mode and self controlled mode of operation of a synchronous motor drive in detail and compare them	CO5	L3	10M