O.P.Code: 25EE2103	R25	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
M.Tech I Year I Semester Regular Examinations January-2026
DC DRIVES
(Power Electronics)

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

(Answer all Five Units **5 x 12 = 60** Marks)

	UNIT-I			
1	Explain the operation of a single-phase semi-converter feeding a DC motor load with neat diagrams.	**CO1**	**L2**	**12M**
	OR			
2	Compare the performance of semi-converter and full-converter drives under continuous and discontinuous conduction modes.	**CO1**	**L4**	**12M**
	UNIT-II			
3	Explain the operation of a three-phase bridge rectifier with resistive load using circuit diagram and waveforms.	**CO2**	**L2**	**12M**
	OR			
4	Explain how a three-phase converter operates as an inverter with appropriate gating sequence.	**CO2**	**L3**	**12M**
	UNIT-III			
5	Derive the transfer function of a converter-fed DC motor drive system.	**CO3**	**L3**	**12M**
	OR			
6	Describe the control circuit of a three-phase converter drive with a neat block diagram.	**CO3**	**L2**	**12M**
	UNIT-IV			
7	Describe the working of a closed-loop speed control system for a DC motor using block diagram.	**CO4**	**L2**	**12M**
	OR			
8	Derive the dynamic model equations of a current-controlled DC motor drive.	**CO4**	**L4**	**12M**
	UNIT-V			
9	Define four-quadrant operation of a chopper-fed DC drive with neat waveforms.	**CO5**	**L2**	**12M**
	OR			
10	Derive the expression for average armature voltage and current in a chopper-fed DC motor.	**CO6**	**L3**	**12M**

*** END ***