

Enroll No

Q.P.Code
UT 3073

Unit Test -II (2025-26)

T.Y. B.Tech.- Robotics & Automation Engineering

Course Code: RA301

Course Name: Electric Drives and Control

Day & Date: Thursday 18/09/2025

Time: 10:30 To 12:30

Max Marks- 25

Instructions: 1) All Questions are Compulsory

2) Figures to the right indicate maximum marks

3) Assume suitable data if not given

4) Use of non-programmable calculator is allowed

		Marks	COs	BT Level
Q.1	A Explain following speed control methods of dc series motor with the help of suitable diagram.	9	CO3	4
	i. Armature Diverter Method (3 Marks)			
	ii. Field Diverter Method (3 Marks)			
	iii. Armature Resistance Control Method (3 Marks)			
	B A 250 V DC shunt motor having an armature resistance of 0.5Ω carries an armature current of 60 A and runs at 900 RPM. If the flux is decrease by 12 % by the field rheostat. Find the speed of the motor assuming the load torque remains the same.	6	CO3	5
	OR			
	B A 250 V DC series motor runs at 1000 RPM when drawing a line current of 50 A. The armature and series field resistances are 0.08Ω and 0.05Ω respectively. If the current taken by the motor remains the same, determine the value of series resistance required to reduce the speed to 800 RPM.	6	CO3	5
Q.2	A Explain working principle (2 marks) of synchronous motor with help of suitable diagram (2 marks)	4	CO4	3
	B Explain following in context of 3 Phase Induction Motor	6	CO4	3
	i. How rotating magnetic fields are created (4 marks)			
	ii. Why induction motor never runs in synchronounous speed (2 marks)			

