

Enroll No

K.E.Society's
Rajarambapu Institute of Technology, Rajaramnagar
 (An Empowered Autonomous Institute, affiliated to SUK)
Unit Test - I/II (2025-26)

Q.P. Code
UT 3129

T.Y. B.Tech.-Mechatronics Engineering
Course Code: OE355 Course Name: Cyber Physical Systems

Day & Date: Friday 19/09/2025

Time: 10:30 – 11:30 AM

Max Marks- 25

- Instructions:**
- 1) All questions are compulsory.
 - 2) Figures in rounded() brackets within the question, indicate the scheme of marking for respective part of the question, whereas, figures in the first right column indicate total marks for that whole question.
 - 3) CO is the index number of the Course Outcome statement.
 - 4) The Bloom's taxonomy level (BL) for 1,2,3,4,5 and 6 is remember, understand, apply, analyze, evaluate and create respectively.
 - 5) Assume suitable data if necessary.
 - 6) Use of non-programmable calculators is allowed

			Marks	BT Level	COs
Q.1	A	Apply the selection criteria for actuators to choose a suitable actuator for a robotic arm or an industrial automation system. (Each criteria 1 mark)	5	3	3
	B	Describe the basic differences between a microprocessor and a microcontroller with reference to their functions (Each difference point 1 mark)	5	2	3
	C	Apply the principle of capacitive sensors to demonstrate how they can be used in Cyber-Physical Systems for applications. (Capacitive sensor explanation 3 marks, diagram 1 mark, application 1 mark)	5	3	3
		OR			
	C	Apply different wireless technologies to design a simple Cyber-Physical System and justify the choice of technology for data communication. (each type 1 mark)	5	3	3
Q.2	A	List the characteristics of Continuous Dynamic Models (each characteristic 1 mark)	5	2	4
	B	Apply control mechanisms to a continuous dynamic system, provide an example, and illustrate how these mechanisms improve system performance (explanation 3 marks example 1 mark, advantages 1 mark)	5	2	4

