Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations – October 2025

Date 10-10-2025 **Time:** 09.30am to 11.00am

School: SOCSE	**Program:** B. Tech IoT	
Course Code: CIT2400	**Course Name:** Cyber Physical Systems	
Semester: III	**Max Marks**: 50	**Weightage**:25%

CO - Levels	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
Marks					

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks. **5Q x 2M=10M**

1	Define Industry 4.0 in one sentence.	**2 Marks**	**L1**	**CO1**
2	Mention any two applications of CPS in Smart Cities.	**2 Marks**	**L1**	**CO1**
3	Why is cybersecurity important in CPS?	**2 Marks**	**L1**	**CO1**
4	What is the function of actuators in CPS? Give one example.	**2 Marks**	**L1**	**CO2**
5	State the difference between continuous and discrete dynamics in CPS.	**2 Marks**	**L1**	**CO2**

Part B

Answer the Questions. **Total Marks 40M**

6.	**a.**	Explain the principles of CPS (integration, feedback, real-time processing) with examples.	**10 Marks**	**L2**	**CO 1**
		Or			

7.	**a.**	Illustrate the reliability and safety issues in CPS with relevant case studies.	**10 Marks**	**L2**	**CO 1**

8.	**a.**	Describe CPS applications in Smart Grids and Energy Management.	**10 Marks**	**L2**	**CO 1**
		Or			
9.	**a.**	Demonstrate CPS concepts to explain Autonomous Vehicle systems.	**10 Marks**	**L2**	**CO 1**

10.	**a.**	Compare MCUs and MPUs in terms of architecture, performance, and applications in CPS.	**10 Marks**	**L2**	**CO 2**
		Or			
11.	**a.**	Discuss the role of hybrid MCU-MPU systems in drones with examples.	**10 Marks**	**L2**	**CO 2**

12.	**a.**	Explain stability, controllability, and observability in CPS dynamic behaviors with examples.	**10 Marks**	**L2**	**CO 2**
		Or			
13.	**a.**	IoT-enabled sensors detect contamination in a city water supply, but false positives occur frequently due to sensor noise. **i.** Discuss how robustness and fault tolerance requirements can address this. **ii.** Propose a machine learning–based solution to improve accuracy.	**10 Marks**	**L2**	**CO 2**