RV College of Engineering®

Academic Year 2024-25 (ODD Semester)

USN:

Department of Artificial Intelligence and Machine Learning

Course Code: AI234AI
Sem: III Semester
Duration: 120 Minutes

Date:
Maximum Marks: 50
Quiz Marks: 10

IMPROVEMENT TEST
Foundation of Cyber-Physical Systems

SL. No		Questions	M	BT	CO
		PART-A: QUIZ			
1		What do you mean Mobile ad-hoc (MANET) Networks and what is the use of it in CPS.	2	1	1
2		List the Primary design concerns for Wireless sensor networks.	2	1	1
3		What are the advantages of Dynamic Spectrum Access (DSA).	2	1	2
4		List ant two applications of Wireless sensor networks.	2	1	1
5		Write function of sensor interface board and platform sensor in underwater sensor network.	2	2	1
		PART-B			
1	a)	Describe the Typical Underwater Sensor System Architecture	5	2	2
	b)	Explain the importance of measurement resolution, Sensor sensitivity and Sensor accuracy camera sensors for collision avoidance in autonomous vehicles.	5	3	1
2	a)	Summarize IEEE 802.15.4 Standard Packet Frame Format.	5	2	1
	b)	Differentiate Traditional Sensor Networks and Wireless Sensor Networks.	5	2	2
3	a)	Explain the characteristics of the Actuators.	5	2	2
	b)	Highlight the characteristics of hydraulic and pneumatic actuators.	5	2	2
4	a)	Discuss Actuation System with an example.	5	2	1
	b)	What do you mean by Soft Actuators and List the applications of Soft Actuators.	5	2	2
5	a)	Illustrate Typical Smart Sensor Network System Architecture.	5	2	2
	b)	The OODA Loop (Observe, Orient, Decide, Act) framework, originally developed for military decision-making, provides a structured approach to enhancing the performance, adaptability, and resilience of CPS applications. Consider a smart grid application and discuss how OODA can be adapted to enhance the performance.	5	3	2