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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

April 2024 Semester End Main Examinations

Programme: B.E. **Semester: III**
Branch: : CSE (IoT & Cybersecurity including Blockchain) **Duration: 3 hrs.**
Course Code: 23IC3PCEDS **Max Marks: 100**
Course: Embedded Systems

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	*CO*	*PO*	Marks
1	a)	Define IOT. Elucidate the characteristics of IOT.	*CO2*	*PO2*	**10**
	b)	Enlist the IoT Levels with example for each. Analyze the IoT levels for designing home automation.	*CO2*	*PO2*	**10**
		UNIT – II			
2	a)	What is Arduino? Write a brief note on Arduino Uno.	*CO2*	*PO2*	**06**
	b)	What are actuators? Explain about any two in detail.	*CO2*	*PO2*	**06**
	c)	Elucidate on the types of sensors used for the following (i)Measuring Humidity (ii)Measuring Distance	*CO2*	*PO2*	**08**
		UNIT – III			
3	a)	Consider a scenario of a chemical factory where highly inflammable materials are used. Design an IoT system such that workers are automatically alerted by red light and sound in case fire is detected.	*CO3*	*PO2*	**10**
	b)	What is a relay switch?	*CO1*	*PO1*	**04**
	c)	What are the steps in the Integration of Sensors and Actuators with Arduino?	*CO1*	*PO1*	**06**
		OR			
4	a)	Design and implement an IOT system for smart home where the lights are ON/OFF based on light intensity in the room.	*CO3*	*PO3*	**10**
	b)	Write a program to play a sound using Arduino and necessary components. Explain.	*CO1*	*PO1*	**10**
		UNIT – IV			
5	a)	What is Raspberry Pi and what are it's features?	*CO3*	*PO2*	**04**

		b)	What are the interfaces available on Raspberry pi for data transfer? Elaborate.	*CO3*	*PO1*	**06**
		c)	Write a program for interfacing LED and push button with Raspberry Pi.	*CO3*	*PO3*	**10**
			OR			
	6	a)	Enlist the various flavors of Linux that are supported by Raspberry Pi and explain.	*CO3*	*PO2*	**05**
		b)	Design an automatic lightning system with LDR, Light and raspberry pi and write a python program to support the working of that design.	*CO3*	*PO2*	**10**
		c)	Justify how Raspberry Pi is different from a desktop computer	*CO1*	*PO1*	**05**
			UNIT – V			
	7	a)	Design an Home Automation System using Internet of Things.	*CO3*	*PO3*	**10**
		b)	How is Internet of Things adapted for the following application. (i) Forest Fire Detection (ii) Noise pollution Monitoring	*CO3*	*PO2*	**10**

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