U.S.N.										

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

Autonomous Institute Affiliated to VTU

September / October 2024 Supplementary Examinations

Programme: B.E. **Semester: V**
Branch: Computer Science and Engineering **Duration: 3 hrs.**
Course Code: 22CS5PCIOT **Max Marks: 100**
Course: Internet of Things

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)	Explain different types of IoT protocols at Link layer.	CO1	PO2	**10**
	b)	Differentiate between REST API and WebSocket based communication API.	CO1	PO2	**04**
	c)	Explain the pin configuration in Arduino Development board, with a circuit diagram.	CO1	PO2	**06**
		OR			
2	a)	Describe different types of IoT levels and their applications.	CO1	PO2	**12**
	b)	List the IoT communication models. Explain any two with a neat diagram.	CO1	PO2	**04**
	c)	Develop a code using Arduino to illustrate digital read and analog write operations which results in controlling LED with a push button.	CO1	PO2	**04**
		UNIT - II			
3	a)	Describe the steps to change the data mode to AT mode when Bluetooth is interfaced with Arduino. Write the AT commands.	CO2	PO1	**04**
	b)	Analyze the working of WiFi module (ESP8266) and its pin configuration while sending the data in a single connection mode.	CO2	PO1	**06**
	c)	Write a program to program to demonstrate to read data from RFID tag Reader to serial. Draw the circuit diagram and its pin configuration.	CO3	PO3	**10**
		UNIT - III			
4	a)	Develop a Program to Interface LED and Switch with Raspberry Pi, with a neat circuit diagram.	CO3	PO3	**06**
	b)	Paraphrase the Quality of Service (QoS) 0, 1 and 2 using MQTT protocol.	CO3	PO3	**08**

		c)	Write a program to Call using Arduino and GSM Module – to a specified mobile number inside the program.	*CO3*	*PO3*	**06**
			OR			
	5	a)	Write a program on Raspberry Pi to upload and retrieve temperature and humidity data from thingspeak cloud or any cloud platform.	*CO3*	*PO3*	**06**
		b)	Paraphrase the sequence diagram that illustrates the resource discovery process over the network when using CoAP.	*CO3*	*PO3*	**08**
		c)	Develop a program to Call a specified mobile number mentioned in the program using Arduino and GSM Module when a flame sensor detects “fire”.	*CO3*	*PO3*	**06**
			UNIT - IV			
	6	a)	With a neat diagram explain the role of cloud computing integrated with IoT.	*CO3*	*PO3*	**06**
		b)	Describe the architecture of IoT edge analytics. List the advantages of Edge analytics.	*CO3*	*PO3*	**10**
		c)	Paraphrase different types of data streaming in IoT Edge analytics.	*CO3*	*PO3*	**04**
			UNIT - V			
	7	a)	Differentiate between Structured and Unstructured data in IoT.	*CO1*	*PO2*	**06**
		b)	Explain the challenges of Data Science for IoT.	*CO1*	*PO2*	**06**
		c)	Francis :-) lives in a two-room apartment with his very furry dog Parsons. Unfortunately, Francis does not own a central air conditioning system, but has cooling fans in both rooms. It is summer, and Francis understands that Parsons will need his room cooled during daytime on the weekdays especially when he is at work. Design an MLoT system for model selection, evaluation and training for Francis that can learn from his personal room fan settings ("Y") and then make control predictions based on input from the control sensors ("X") and time settings in his apartment.	*CO3*	*PO3*	**08**

****