U.S.N.										

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

Autonomous Institute Affiliated to VTU

June 2025 Semester End Main 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.

				CO	PO	Marks
			UNIT - I			
	1	a)	Design and implement a smart lighting system using an LDR (Light Dependent Resistor) and an LED. The system should automatically activate the LED when ambient light intensity falls below 50% of the maximum sensor value. Circuit Configuration: Connect one terminal of the LDR to the 5V supply. Connect the other terminal of the LDR to both the analog input pin A0 and one end of a 110KΩ resistor. Connect the other end of the 110KΩ resistor to the GND pin.	*3*	*3*	**10**
		b)	Analyze and discuss the parameters to be considered while selecting sensors for an IoT system.	*1*	*1*	**10**
			OR			
	2	a)	The shaft function sets the position of the servo motor according to potentiometer value. Write an Arduino program to implement the shaft function using servo motor and potentiometer.	*3*	*3*	**10**
		b)	Analyze and design how an IoT system can be developed which controls switching ON/OFF of AC according to ambient temperature.	*3*	*2*	**10**
			UNIT - II			
	3	a)	Design a wireless communication system to control the LED in the Master device by client device through push button through Bluetooth communication. Write the commands for the configuration of master and slave modules.	*3*	*2*	**10**
		b)	Identify and justify the protocol used by" Facebook Messenger, Amazon Web Services".	*1*	*1*	**05**
		c)	Write and explain the commands to configure an ESP8266 module as an access point.	*1*	*1*	**05**
			OR			
	4	a)	List comparisons between CoAP and MQTT features.	*1*	*1*	**10**

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.

		b)	What is RFID? Elucidate the principle on which it works.	*1*	*1*	**04**
		c)	List Wi-Fi interface range, data transfer rates, security and flexibility.	*1*	*1*	**06**
			UNIT - III			
	5	a)	What is SDN and it's features? What is the role of SDN in IoT?	3	*3*	**10**
		b)	What is a Raspberry Pi? What are the features besides very low performance to cost ratio, which makes RPi boards widely used?	*3*	*3*	**10**
			OR			
	6	a)	Analyze and name the headers in 6LoWPAN adaptation layer that are needed to support: 1) Packet fragmentation and reassembly and 2) Link layer forwarding. Explain the header formats with diagrams. Explain the need of the 6LowPAN adaptation layer.	*1*	*1*	**10**
		b)	Draw the sequence diagram to query a resource state in IoTivity with a brief explanation.	*2*	*2*	**10**
			UNIT – IV			
	7	a)	Detail the various services provided by the cloud for IoT networks.	*2*	*2*	**10**
		b)	Demonstrate and distinguish between Database Management Systems (DBMS) and Data Stream Management Systems (DSMS) with suitable diagrams.	*2*	*2*	**10**
			OR			
	8	a)	What is Complex Event Processing? Substantiate the reasons for them being adopted in IOT Applications.	*2*	*2*	**10**
		b)	Write a short note on Amazon Web service S3.	*2*	*2*	**10**
			UNIT - V			
	9	a)	Signify the feature selection techniques for filter -based, Wrapper-based and embedded features suitable examples.	*2*	*2*	**10**
		b)	Illustrate the characteristics of real-time analytics with appropriate diagrams.	*2*	*2*	**10**
			OR			
	10	a)	Enlist the steps in the Data Science Process and explain with a neat sketch.	*2*	*2*	**10**
		b)	List the types of Data Analytics with respect to Big Data. Explain any one in detail.	*2*	*2*	**10**

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