U.S.N.										

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

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E. **Semester: V**
Branch: Computer Science and Engineering **Duration: 3 hrs.**
Course Code: 22CS5PCIOT / 20CS5PEIOT **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)		Define IOT. Elucidate the characteristics of IOT.	CO2	PO2	**10**
	b)		Design smart lighting system (circuit design and interfacing program) using LDR (Light dependent Resistor) and LED. When light intensity goes below 50% of sensor value the LED should glow automatically. Note: Pin configuration of LDR **Attach one leg of LDR to 5V and attach another leg to 110K resistor and A0. The end of 110K resistor should be connected to GND.**	CO2	PO2	**10**
			OR			
2	a)		Imagine you want a sensor on a robot to swing through an arc or move to a position you select. Write an Arduino program to implement this.	CO3	PO3	**10**
	b)		Write a program to send serial data from ARDUINO Displayed as text, Decimal ,Hexadecimal or Binary values	CO3	PO3	**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.	CO1	PO1	**10**
	b)		What is RFID? Elucidate the principle on which it works.	CO1	PO1	**04**
	c)		List Wi-Fi interface range, data transfer rates, security and flexibility.	CO1	PO1	**06**
			OR			

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.

	4	a)	Identify and justify the protocol used by" Facebook Messenger, Amazon Web Services".	CO1	PO1	**05**
		b)	Write and explain the commands to configure an ESP8266 module as an access point.	CO1	PO1	**05**
		c)	Design a weather monitoring system using WiFi and any cloud services to store and analyze the data.	CO3	PO3	**10**
			UNIT - III			
	5	a)	Write a python code to measure the intensity of light in a room using a single photocell and a capacitor connected to the raspberry pi.	CO3	PO3	**10**
		b)	What is SDN and it's features? What is the role of SDN in IoT?	CO3	PO3	**10**
			OR			
	6	a)	Describe the architecture of Intel IoTivity.	CO4	PO3	**10**
		b)	Analyze and name the headers in 6LoWPAN adaptation layer that are needed to support: i) Packet fragmentation and reassembly and ii) Link layer forwarding. Explain the header formats with diagrams. Explain the need of the 6LowPAN adaptation layer.	CO4	PO5	**10**
			UNIT - IV			
	7	a)	What is Complex Event Processing? Substantiate the reasons for them being adopted in IOT Applications.	CO4	PO3	**10**
		b)	Write a short note on Amazon EC2 launching.	CO4	PO5	**10**
			OR			
	8	a)	Demonstrate and distinguish between Database Management Systems (DBMS) and Data Stream Management Systems (DSMS) with suitable diagrams.	CO4	PO3	**10**
		b)	Detail the various services provided by the cloud for IoT networks along with the cloud service providers.	CO4	PO5	**10**
			UNIT - V			
	9	a)	Enlist the steps in the Data Science Process and explain with a neat sketch.	CO4	PO3	**08**
		b)	Write a program to identify missing values and fill them.	CO3	PO3	**06**
		c)	List the types of Data Analytics with respect to Big Data. Explain any one in detail.	CO4	PO5	**06**
			OR			
	10	a)	Signify the feature selection techniques for filter -based, Wrapper-based and embedded features suitable examples.	CO3	PO3	**10**
		b)	Illustrate the characteristics of real-time analytics with appropriate diagrams.	CO4	PO5	**10**

****