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

Autonomous Institute Affiliated to VTU

October / November 2021 Supplementary Examinations

Programme: B.E. **Semester : V**
Branch : Computer Science and Engineering **Duration: 3 hrs.**
Course Code : 16CS5DCIOT **Max Marks: 100**
Course Title : Internet of Things **Date: 21.10.2021**

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

UNIT - I

1	a)	Define Internet of Things and briefly explain its characteristics	**06**
	b)	Describe IoT protocols with neat block diagram.	**08**
	c)	Design a IoT level-5 application with neat diagram and justify your design.	**06**

UNIT - II

2	a)	Analyze the factors to be considered when designing IoT device.	**06**
	b)	Design and implement a program to call a specified mobile number using Arduino and GSM Module when flame sensor detects "Fire"	**06**
	c)	Explain Arduino board architecture with neat diagram.	**08**

OR

3	a)	Design an IoT system which controls the servo motor rotation using Bluetooth. The Bluetooth module upon receiving command '1' should rotate servo motor from 0 to 180 degrees and should rotate servo motor from 180 to 0 degrees upon receiving command '2' from the android application. Also explain the advantage of using software serial library in the program	**10**
	b)	Design and implement a program to read the code present on RFID tag. If the code matches with the previously known tag, the system will grant access(here LED will glow),otherwise access will be denied	**10**

UNIT - III

4	a)	Discuss 6LoWPAN encapsulation header stack with neat diagram.	**06**
	b)	Analyze loop avoidance and loop detection mechanisms in RPL.	**06**
	c)	With a neat diagram describe the IoT reference architecture model	**08**

OR

5	a)	Design CoAP applications for smart homes.	**06**
	b)	Discuss MQTT publish, subscribe and unsubscribe model.	**07**
	c)	Infer that the CoAP protocol is suitable for IoT applications over HTTP.	**07**

UNIT - IV

6	a)	Implement WAMP publisher and subscriber using AutoBahn framework.	**10**

b) Construct a code for launching an EC2 instance and explain its functions. **10**

UNIT - V

7 a) Explain IoT communication models with neat diagram. **07**

b) Analyze challenges and hurdles of wireless sensor network in IoT. **07**

c) Discuss WiFi's benefits for enterprise IoT networking. **06**

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