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

Autonomous Institute Affiliated to VTU

August 2024 Supplementary Examinations

Programme: B.E. **Semester: V**
Branch: Computer Science And Engineering **Duration: 3 hrs.**
Course Code: 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 suitably assumed.

UNIT - I

1	a)	Explain the different communication models in IoT.	**6**
	b)	Apply the knowledge of different IoT levels and Analyze the suitable IoT levels for designing Smart irrigation system and package tracking system.	**8**
	c)	Describe any two Major technologies that play a key role in IoT.	**6**

UNIT - II

2	a)	Illustrate the features and pin configuration of Arduino Board.	**6**
	b)	Design an alert system for the office such that if anyone enters the restricted area, floor incharge should get a alert at his place.	**8**
	c)	Design and implement an IoT system for smart home where the lights are ON/OFF based on light intensity in the room.	**6**

OR

3	a)	Write an Arduino program to read temperature from LM35 and print it in the serial monitor.	**6**
	b)	Design and implement an IoT system to detect any obstacle in the range and Calculate the distance of the obstacle using suitable sensor.	**8**
	c)	Enlist the static and dynamic factors to be considered within a selection of a suitable sensor to measure the physical parameters	**6**

UNIT - III

4	a)	Explain features of 6LoWPAN adaptation layer and mesh addressing headers in the context of 802.15.4 network.	**6**
	b)	Identify the need for IoT Reference Architecture. Describe the layer which provide connectivity-communication, and the layer which provides data analysis and transformation functionality according to IoT Reference Architecture	**8**

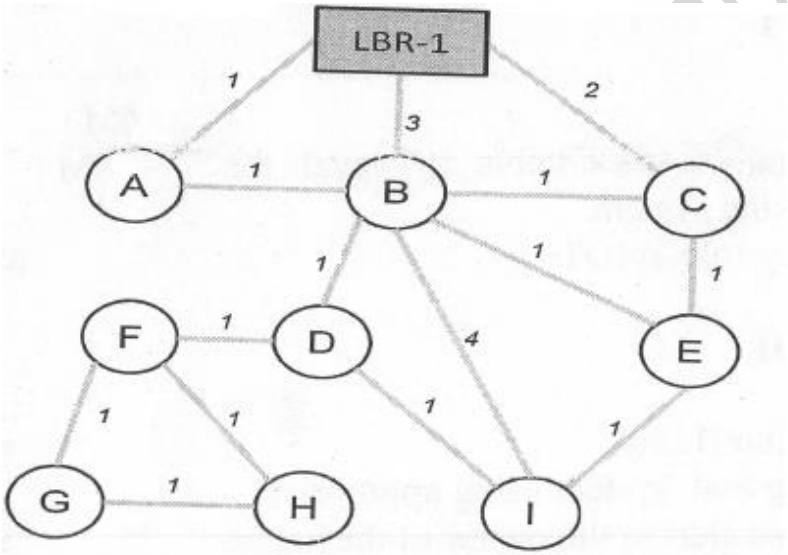
c) Write an Arduino program to implement a system to control the home using appliances using Bluetooth technology. **6**

OR

5 a) Describe the features of RFID reader and tags.Write a Arduino program to read the code present on RFID tag and print it on the serial monitor. **8**

b) Demonstrate how CoAP protocol is different from HTTP protocol and illustrate the methods to achieve reliability in CoAP. **6**

c) Demonstrate the Type of messages exchanged in RPL. Construct a RPL DODAG for the topology with F is to minimize the ETx with detailed explaination. **6**



UNIT -IV

6 a) Describe the services provided by IoTivity. **6**

b) Develop a sequence to update the threshold of temperature sensor which is registered in a server using IoTivity support. **8**

c) Write an example of WAMP Publisher and WAMP Subscriber implementation using AutoBahn framework. **6**

UNIT - V

7 a) Write a program to create a SQS queue and also have the functions to write and read the queue. **8**

b) Design a system to store the temperature sensed by the sensor in a SQL database using RDS Amazon Web Service. **6**

c) Construct a code and explain the functions used for launching EC2 instance **6**

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