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15CS81

Eighth Semester B.E. Degree Examination, Jan./Feb. 2023
Internet of Things Technology

Time: 3 hrs.

Max. Marks:80

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1 a. What is IOT? Explain in detail on genesis of IOT. **(08 Marks)**
   b. Explain access network sublayer with neat diagram. **(08 Marks)**

OR

2 a. Describe IOT World Forum (IOTWF) standardized architecture. **(08 Marks)**
   b. Write a short note on IOT impact in real world. **(08 Marks)**

Module-2

3 a. With a neat diagram, explain how actuators and sensors interact with physical world. Classify actuators based on energy type. **(08 Marks)**
   b. List out the limitations of the smart objects in WSNs and explain the data aggregation in WSN with a neat diagram. **(08 Marks)**

OR

4 a. What is Zigbee? Explain 802.15.4 physical layer, MAC layer, and security. **(08 Marks)**
   b. Explain LoRaWAN standard and alliance MAC layer and security. **(08 Marks)**

Module-3

5 a. With a neat diagram, explain 6LOWPAN protocol header comparison and fragmentation. **(08 Marks)**
   b. List and explain the key advantages of internet protocol. **(04 Marks)**
   c. Explain RPL encryption and authentication on constraint nodes. **(04 Marks)**

OR

6 a. Explain tunneling legacy SCADA over IP networks ad SCADA protocol translation with a neat diagram. **(08 Marks)**
   b. Describe MQTT framework and message format in detail. **(08 Marks)**

Module-4

7 a. What are the ways IoT data is categorized? Explain in detail. **(06 Marks)**
   b. Discuss the following :
      i) Supervised learning
      ii) Unsupervised learning
      iii) Neural Networks. **(10 Marks)**

OR

8 a. Explain any two Big data analytics tools and technologies. **(10 Marks)**
   b. Explain Lambda Architecture in details. **(06 Marks)**

Module-5

9 a. What is Arduino? What are the advantages of Arduino? **(06 Marks)**
   b. How to install arduino software for the windows PCs? **(10 Marks)**

OR

10 a. Distinguish between Raspberry Pi and Arduino. **(04 Marks)**
   b. Develop a python program which monitors a temperature of an engine using DS18B20 sensor and Raspberry Pi. **(12 Marks)**

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