CBCS SCHEME

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18CS81

Eighth Semester B.E. Degree Examination, Dec.2024/Jan.2025
Internet of Things

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. Explain the genesis of IoT. **(05 Marks)**

b. With neat diagram explain core IoT functional stack. **(10 Marks)**

c. Illustrate the challenges of IoT and their impact, with any one example. **(05 Marks)**

OR

2 a. Compare the M2M and IoT World Forum (IOTWF) architecture with neat diagram. **(10 Marks)**

b. Illustrate the hierarchical nature of fog, edge and cloud computing. **(05 Marks)**

c. Explain the current challenges by comparing IT and OT networks. **(05 Marks)**

Module-2

3 a. List and explain the different categories of sensor and actuators. **(06 Marks)**

b. With neat diagram explain the characteristics and trends of smart objects. **(08 Marks)**

c. What is SANET? List the advantages and disadvantages that a wireless-based solution offers. **(06 Marks)**

OR

4 a. Explain the physical, Mac layer and security of IEEE 802.15.4 and IEEE 802.15.4g **(10 Marks)**

b. Explain LoWPAN layers and its architecture. **(10 Marks)**

Module-3

5 a. Explain key advantages of IP suite for the Internet of Things (IoT). **(08 Marks)**

b. Define adaptation and adoption. **(02 Marks)**

c. With neat diagram, explain the 6TiSCH. **(10 Marks)**

OR

6 a. With a neat diagram, explain the MQTT and CoAP high level IoT protocol stack. **(10 Marks)**

b. Explain raw socket scenario for tunneling legacy and SCADA over IP networks. **(10 Marks)**

Module-4

7 a. Explain the types of data analysis. (05 Marks)

b. Explain in details of massively parallel processing system architecture. (05 Marks)

c. Explain the Lambda architecture. (10 Marks)

OR

8 a. Comparison between Bigdata, Edge analytics. (05 Marks)

b. Mention the benefits of network analysis and FNF architecture. (05 Marks)

c. Explain the formal risk analysis structures Octave and FAIR. (10 Marks)

Module-5

9 a. With a neat diagram explain Arduino UNO board. (08 Marks)

b. Explain the structure of Arduino UNO with blink LED display program. (06 Marks)

c. Write a note on DS 18B20 temperature sensor. (06 Marks)

OR

10 a. With a neat diagram, explain Raspberry PI board. (06 Marks)

b. Explain the smart city layered architecture. (08 Marks)

c. Write a note on:
digitalRead( ), digitalWrite( ), randomSeed( ), analogRead( ), PinMode( ), serial.begin( ) (06 Marks)

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