CBCS SCHEME

USN | | | | | | | | | | |

17CS81

Eighth Semester B.E. Degree Examination, June/July 2023
Internet of Things and Applications

Time: 3 hrs. Max. Marks: 100

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. **(10 Marks)**

b. List and explain some of the differences between IT and OT Networks and their various challenges. **(06 Marks)**

c. Illustrate the hierarchy of edge, fog and cloud, with neat diagram. **(04 Marks)**

OR

2 a. With a neat diagram, explain the one M2M IoT standardized architecture. **(10 Marks)**

b. List and explain a few of the most significant challenges and problems that IoT is currently facing. **(05 Marks)**

c. Explain Core IoT functional stack. **(05 Marks)**

Module-2

3 a. Briefly explain the number of ways to group and clusters sensors into different categories. **(07 Marks)**

b. How Sensors and Acutators interact with the Physical World? **(05 Marks)**

c. Write short note on High Level Zigbee and Zigbee IP Protocol Stack. **(08 Marks)**

OR

4 a. Explain IoT Access Technologies. **(07 Marks)**

b. Write a short note on Data Aggregation in Wireless Sensor Networks. **(07 Marks)**

c. Briefly explain Protocol Stack utilization 802.15.4. **(06 Marks)**

Module-3

5 a. Explain with example, the role of MQTT Protocol in IoT. **(08 Marks)**

b. Discuss Tunnelling Legacy SCADA over IP network. **(08 Marks)**

c. Compare COAP and MQTT with some factors. **(04 Marks)**

OR

6 a. Why Optimization is necessary of Internet Protocol? **(08 Marks)**

b. Describe with neat diagram, the header stack of 6LOWPAN. **(07 Marks)**

c. Discuss IoT application Protocols and their Transport methods. **(05 Marks)**

Module-4

7 a. What do you mean by data and analytics for IoT? Explain. **(05 Marks)**

b. Explain Big Data Analytics tools. **(10 Marks)**

c. Machine learning is indeed control to IoT. Justify. **(05 Marks)**

OR

8 a. Explain Formal Risk Analysis Structure. **(10 Marks)**

b. What is IoT data analytics and their challenges? **(10 Marks)**

Module-5

9 a. What is Arduino? Explore Arduino UNO learning board. **(06 Marks)**

b. Write a simple Python Programs on Rasberry Pi :

i) To add 2 numbers ii) To Print Fibonacci series upto n. **(08 Marks)**

c. Explain in detail Smart City IoT Architecture. **(06 Marks)**

OR

10 a. What is Rasberry Pi? Explore the Rasberry Pi learning board with circuit diagram. **(07 Marks)**

b. Explain the following with respect to Arduino Programming :

i) Structure ii) Functions iii) Variables

iv) Flow Control Statements v) Data type vi) Constants. **(08 Marks)**

c. Write a short note on :

i) IoT Challenges ii) Backhaul technologies. **(05 Marks)**

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