CBCS SCHEME

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

18CS81

Eighth Semester B.E. Degree Examination, July/August 2022
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. What is Internet of Things (IoT)? Explain Genesis of IoT, with a neat diagram. **(08 Marks)**
b. Compare IT and OT Networks with different criterion. **(08 Marks)**
c. Explain different challenges faced by IoT. **(04 Marks)**

OR

2 a. Explain One M2M IoT Standardized Architecture, with a neat diagram. **(10 Marks)**
b. What is a Fog Node? Explain characteristics of Fog Computing Model. **(05 Marks)**
c. Illustrate various access technologies with respect to distances in core IoT functional stack. **(05 Marks)**

Module-2

3 a. Explain any 5 ways to group sensors into different categories. **(05 Marks)**
b. List any two advantages of Wireless based solution. Illustrate with a neat diagram, the interaction of Sensors and Actuators, with the Physical World. **(07 Marks)**
c. What is a Smart Object? Explain its characteristics. **(08 Marks)**

OR

4 a. Explain the following key factors involved in connecting smart objects to the network :
i) Range ii) Frequency bonds. **(10 Marks)**
b. Explain IEEE 802.15.4 IoT Access technology. **(10 Marks)**

Module-3

5 a. Explain the key advantages of IP suite for IoT. **(05 Marks)**
b. Explain 6 LOWPAN Protocol Header Compression and Fragmentation, with a neat diagram. **(08 Marks)**
c. Illustrate Routing Protocol for Low Power and Lossy Networks (RPL), with a neat diagram. **(07 Marks)**

OR

6 a. Explain the message format of the following protocols with a neat diagram :
i) Constrained Application Protocol (CoAP).
ii) Message Queuing Telemetry Transport (MQTT). **(10 Marks)**
b. Describe the Scheduling Management Mechanisms and forwarding Models and Supported by 6 TiSCH. **(10 Marks)**

Module-4

7 a. Explain different types of Data Analysis results with example. **(08 Marks)**
b. Distinguish between Supervised and Unsupervised Machine Learning. **(05 Marks)**
c. Explain Elements of Hadoop, with a neat diagram. **(07 Marks)**

OR

8 a. What is Apache Spark? Explain layers in Lambda Architecture, with a neat diagram. **(10 Marks)**

b. Explain OCTAVE Allegro steps and phases, with a neat diagram. **(10 Marks)**

Module-5

9 a. Explain the following with respect to Arduino Programming :
i) Structures ii) Functions iii) Variables iv) Flow control statements
v) Data type with example. **(10 Marks)**

b. Explain the steps to install operating system in the SD card of Raspberry Pi. Write a Python program to blink on LED. **(10 Marks)**

OR

10 a. Explain Key Verticals targeted in Smart Cities, with a neat diagram. **(10 Marks)**

b. Explain Smart City IoT Architecture, with a neat diagram. **(10 Marks)**

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