

Eighth Semester B.E. Degree Examination, July/August 2022
Internet of Things

Duration: 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 II and OI 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 bands. (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 cyc. DSC. (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 C++ 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)
