



Eighth Semester B.E. Degree Examination, July/August 2022 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 evolutionary phases of the Internet. (08 Marks)
- b. What are the different challenges of IOT? (07 Marks)
- c. Explain the drivers behind new network architecture. (05 Marks)

OR

- 2 a. With a neat diagram, explain one M2M architecture of IOT. (08 Marks)
- b. Explain Core IOT functional stack. (07 Marks)
- c. Compare and contrast IT and OT. (05 Marks)

Module-2

- 3 a. With a neat diagram, explain how actuators and sensors interact with Physical World. Classify actuators based on energy type. (10 Marks)
- b. Explain briefly the Wireless Sensor Network (WSN) and its Communication Protocols. (10 Marks)

OR

- 4 a. Briefly explain protocol stack utilization of IEEE 802.15.4. (10 Marks)
- b. Explain LoRaWAN standard and alliance MAC layer and security. (10 Marks)

Module-3

- 5 a. Explain 6LoWPAN protocol header compression and fragmentation in detail. (10 Marks)
- b. Explain 6TiSCH architecture in detail. (10 Marks)

OR

- 6 a. Explain Tunneling legacy SCADA over IP networks and SCADA protocol translation with a neat diagram. (10 Marks)
- b. Explain MQTT framework and message format in detail. (10 Marks)

Module-4

- 7 a. Explain the elements of Hadoop with a neat diagram. (10 Marks)
- b. Explain the core functions of edge analytics, with necessary diagram. (10 Marks)

OR

- 8 a. Explain the different components of FNF. (08 Marks)
- b. Describe Distributed Analytics Systems. (07 Marks)
- c. Describe Network Analytics. (05 Marks)

Module-5

- 9 a. Explain the different pins/parts of Arduino UNO Board. (10 Marks)
- b. With a neat diagram, explain the Wireless Temperature Monitoring System with Raspberry Pi. (10 Marks)

OR

- 10 a. Write a Python program on Raspberry Pi to blink an LED. (10 Marks)
- b. Explain Smart City Security Architecture in detail. (10 Marks)
