



# CBCS SCHEME

15EC752

Seventh Semester B.E. Degree Examination, Dec.2019/Jan.2020  
**IOT and Wireless Sensor Networks**

Time: 3 hrs.

Max. Marks: 80

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

## Module-1

- 1 a. Explain any two IOT conceptual frameworks. (06 Marks)
- b. With neat diagram, explain the M2M architecture. (04 Marks)
- c. Describe MQTT protocol for M2M/IOT connectivity. (06 Marks)

**OR**

- 2 a. Describe the IOT reference model suggested by CISCO that gives a conceptual framework for a general IOT system. (06 Marks)
- b. Explain how data enrichment can be achieved before data dissemination to the network. (04 Marks)
- c. Describe the XMPP protocol. (06 Marks)

## Module-2

- 3 a. With neat diagram, show how the four layers generate data stack for the network and physical layers during internet communication. (06 Marks)
- b. Explain the functions of HTTP and HTTPs ports. (04 Marks)
- c. List any six features in Nimbits cloud platforms. (06 Marks)

**OR**

- 4 a. What are the features of IPv4 and IPv6 protocols? (05 Marks)
- b. With neat diagram, explain 6LoWPAN adaptation layer protocol for IEEE 802.15.4 network device. (06 Marks)
- c. With examples, explain the four cloud service models. (05 Marks)

## Module-3

- 5 a. Explain how Arduino platform is programmed using IDE. (08 Marks)
- b. What is an IoT reference architecture with respect to the function group component. Illustrate a threat analysis tool for analysis during a stride. (08 Marks)

**OR**

- 6 a. Describe how the data is read from the sensors and devices. (08 Marks)
- b. Explain a layered attacker model with possible attacks and suggest the solutions for mitigating the attacks on the layers. (08 Marks)

**Module-4**

- 7 a. Explain the characteristic requirements for a Wireless Sensor Networks. (06 Marks)  
b. With a neat diagram, describe a single node architecture in a wireless sensor networks. (06 Marks)  
c. Write a program to wiring components to form a configuration. (04 Marks)

**OR**

- 8 a. What are the enabling technologies for Wireless Sensor Networks? (06 Marks)  
b. Distinguish the four transceiver operational states. (04 Marks)  
c. Differentiate event based programming and process based programming. (06 Marks)

**Module-5**

- 9 a. Explain low duty cycle and wake-up concepts in Wireless Sensor Networks. (06 Marks)  
b. With relevant diagram, explain LEACH protocol. (06 Marks)  
c. State and explain Right-Hand Rule to Recover Greedy Routing (GPSR). (04 Marks)

**OR**

- 10 a. With neat schematic diagram, explain CSMA protocol. (06 Marks)  
b. Explain the SMAC protocol. (06 Marks)  
c. Explain how passive clustering can be achieved in Wireless Sensors Networks. (04 Marks)

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