



# CBCS SCHEME

17EC752

Seventh Semester B.E. Degree Examination, Dec.2023/Jan.2024

## IoT and Wireless Sensor Networks

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Describe IoT reference model suggested by IBM. (08 Marks)
- b. Explain with neat diagram M2M Architecture. (08 Marks)
- c. Explain the Enabling Technologies for IoT. (04 Marks)

OR

- 2 a. Explain with a diagram 4 layered architectural framework developed for IoT smart city application by CISCO. (07 Marks)
- b. Explain the different development tools and open source implementation of IoT. (06 Marks)
- c. Explain Constrained Application Protocol (CoAP) for IoT/M2M. (07 Marks)

### Module-2

- 3 a. Explain Interest Protocol Version 4. (08 Marks)
- b. What is device management? Explain the connected device management in gateway. (08 Marks)
- c. Explain SaaS cloud service model with examples. (04 Marks)

OR

- 4 a. List different cloud deployment models for cloud services in IoT applications. (08 Marks)
- b. List the essential features of cloud storage and computing. (08 Marks)
- c. Explain any 4 important features of HTTP port. (04 Marks)

### Module-3

- 5 a. Write the programming for Arduino controlled traffic controlled light (TL<sup>s</sup>) at road junction with time intervals. (10 Marks)
- b. Explain security requirements and threat analysis with reference to IoT. (10 Marks)

OR

- 6 a. Describe How data is read from sensors and devices. (10 Marks)
- b. Explain in detail the vulnerabilities in IoT. (10 Marks)

### Module-4

- 7 a. What is WSN? Explain the structure of WSNs with neat diagrams. (08 Marks)
- b. Discuss in detail the design principles of WSN. (08 Marks)
- c. Explain service interfaces of WSN requirements. (04 Marks)

OR

- 8 a. Define WSN? What are the major challenges wireless sensor networks are facing? Explain in detail. (10 Marks)
- b. Explain the major characteristics of sensor node used to evaluate the performance of WSN. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-5

- 9 a. Explain in detail the following protocol:  
(i) LEACH  
(ii) TRAMA (10 Marks)  
b. Explain energy efficient unicast routing. (10 Marks)
- OR**
- 10 a. What is clustering? Explain in detail clustering principle in WSN. (08 Marks)  
b. Explain SMAC protocol. (06 Marks)  
c. Explain CSMA protocol. (06 Marks)

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