



# CBCS SCHEME

17EC752

## Seventh Semester B.E. Degree Examination, July/August 2021 IOT and Wireless Sensor Networks

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

1. a. Explain 4 – layers typical model of an IOT architecture with neat diagram. (07 Marks)  
b. What are the advantages and disadvantages of IOT? (07 Marks)  
c. What is industrial IOT (IIOT)? What are the challenges for implementing IIOT? (06 Marks)
2. a. List any four IOT reference architectures. Explain how IOT reference architectures simplify the development of IOT solutions. (06 Marks)  
b. Explain with a diagram, 4-layer architectural framework developed for IOT smart city application by CISCO. (07 Marks)  
c. Explain Constrained Application Protocol (COAP) for IOT/M2M. (07 Marks)
3. a. Explain an IPv6 addressing. What are its advantages? (05 Marks)  
b. What is IOT device management? Explain the connected device management in gateway. (10 Marks)  
c. Explain SaaS cloud service model with examples. (05 Marks)
4. a. Explain an IPv4 addressing. What are its disadvantages? (06 Marks)  
b. What is IOT data management? Explain data management and consolidation in gateway. (07 Marks)  
c. Explain different cloud deployment models for cloud services in IOT applications. (07 Marks)
5. a. Write the programming for Arduino controlled Traffic-Controlled Lights (TLs) at road junction with time intervals. (12 Marks)  
b. Why security is required in IOT? Explain in detail various security models in IOT. (08 Marks)
6. a. Write the programming of Arduino for usage of RFID serial – data reading using UART port. (10 Marks)  
b. Explain in detail the Vulnerabilities in Internet of Things. (10 Marks)
7. a. What is WSN? Explain the structure of WSNs with neat diagrams. (08 Marks)  
b. Discuss in detail the design principles for WSN. (08 Marks)  
c. Explain service interfaces of WSNs requirements? (04 Marks)

- 8 a. Define Wireless Sensor Networks. Explain the principle of operation of WSN with a neat diagram. (06 Marks)
- b. Explain energy consumption issues in wireless sensor networks. (06 Marks)
- c. Explain the major characteristics of sensor node used to evaluate the performance of WSN. (08 Marks)
- 9 a. List the factors that are essential for PHY design in WSNs. (07 Marks)
- b. Differentiate between Contention-based MAC protocol and schedule-based MAC protocol. (06 Marks)
- c. Explain the concept of TRAMA protocol. (07 Marks)
- 10 a. What is clustering? Explain in detail clustering principle in WSN. (06 Marks)
- b. Explain the concepts of mediation device protocols. (07 Marks)
- c. Explain briefly an energy – efficient unicast routing in WSN. (07 Marks)

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