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Question Paper Code	12353
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B.E. / B.Tech - DEGREE EXAMINATIONS, NOV / DEC 2023
Fifth Semester
Computer and Communication Engineering
20CCEL510 - SENSOR NETWORKS AND IOT
(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)
Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
|--|-------------------------------|
| 1. What are the reasons of Hidden Terminal Problem? | 2,K1,CO1 |
| 2. List any five applications of WSN. | 2,K1,CO1 |
| 3. Define data – centric storage. | 2,K1,CO2 |
| 4. List the significance of uniqueness of addresses w.r.t WSN. | 2,K1,CO2 |
| 5. Discuss the characteristics of IoT. | 2,K2,CO3 |
| 6. Summarize the link layer and Network layer protocol for WPAN with data rates. | 2,K2,CO3 |
| 7. State the job of an MQTT broker. | 2,K1,CO4 |
| 8. Define the various characteristics of CoAP protocol. | 2,K1,CO4 |
| 9. What are the key requirements of IoT Security? | 2,K1,CO6 |
| 10. Why is IoT a risk for security and privacy? Outline your answer. | 2,K2,CO6 |

PART - B (5 × 13 = 65 Marks)
Answer ALL Questions

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| 11. a) Describe in short about the | |
| (i) S-MAC protocol | 7,K2,CO1 |
| (ii) STEM protocol | 6,K2,CO1 |
| OR | |
| b) (i) Summarize the difference between Contention-based protocols and Schedule-based protocol. | 7,K2,CO1 |
| (ii) Explain about Low Duty Cycle Protocols. | 6,K2,CO1 |
| 12. a) (i) Explain Address and Name Management in WSNs. | 7,K2,CO2 |
| (ii) Discuss the main design challenges of data dissemination protocols in a wireless sensor network. | 6,K2,CO2 |

OR

b) What is energy efficient routing? Present an outline of energy efficient routing protocols in wireless sensor networks LEACH and PEGASIS. *13,K2,CO2*

13. a) Explain the Various IoT protocols with layered Architecture Diagrams. *13,K2,CO3*

OR

b) (i) Discuss about the FTP, TELNET and ports. *6,K2,CO3*
(ii) Explain Core IoT Functional Block. *7,K2,CO3*

14. a) Discuss about the Message communication protocols (MQTT, XMPP) for IoT/M2M devices. *13,K2,CO4*

OR

b) What is M2M communication and illustrate with neat diagram the Modified OSI Model for the IoT/M2M Systems. *13,K2,CO4*

15. a) (i) What are the common challenges in IoT security? *6,K1,CO6*
(ii) Explain the importance of IoT Privacy and how it is achieved in reality with example. *7.K2.CO6*

OR

b) Explain about the various real time threats in IoT and how it is overcome? *13,K2,CO6*

PART - C (1 × 15 = 15 Marks)

16. a) (i) What is Arduino IDE? Develop a program to fade in fade out LED. *8,K3,CO5*
(ii) Develop a program for Reading Data from Sensors. *7,K3,CO5*

OR

b) Demonstrate the Smart City application of IoT with neat sketch. *15,K3,CO5*