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Question Paper Code	12631
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**B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024**

Fourth Semester

**Computer Science and Engineering (IoT)**

**20CIPW401 - COMMUNICATION AND NETWORKING TECHNOLOGIES FOR IOT  
WITH LABORATORY**

(Regulations – 2020)

Duration: 3 Hours

Max. Marks: 100

**PART - A (10 × 2 = 20 Marks)**

Answer ALL Questions

	Marks	K- Level	CO
1. What is the difference between MAC address and IP address?	2	K2	CO1
2. List the difference between circuit switched and packet switched networks.	2	K1	CO1
3. What are two different classes of routing protocol?	2	K1	CO2
4. Difference between MANET and VANET.	2	K2	CO2
5. How does DSRC Protocol works?	2	K1	CO3
6. Explain Bluetooth and its variants.	2	K2	CO3
7. Summarize the basic of MIME with an example.	2	K2	CO4
8. Why the E-mail compatibility function in PGP needed?	2	K1	CO4
9. List any two challenges associated with integrating renewable energy sources into the smart grid infrastructure.	2	K1	CO5
10. What are two main objectives of commercial building automation systems (BAS)?	2	K1	CO5

**PART - B (5 × 13 = 65 Marks)**

Answer ALL Questions

11. a) i) Interpret the major functions performed by the layers of the ISO – OSI model.	10	K2	CO1
ii) Explain the various classes of transmission medium.	3	K2	CO1
<b>OR</b>			
b) Summarize about the different types of communication Models and mention its advantages and disadvantages.	13	K2	CO1
12. a) i) Explain the Distance Vector routing algorithm. Analyze its limitations comparing with other routing algorithms.	8	K2	CO2
ii) Infer the advantage of wireless sensor networks in environmental monitoring?	5	K2	CO2

**OR**

*K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create*

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- b) i) Illustrate what is Vulnerable Period? How it affects the performance in MAC protocol? 8 K2 CO2
- ii) Compare and contrast IPv4 and IPv6 header fields. Do they have any fields in common? Explain. 5 K2 CO2
13. a) i) Describe Physical and MAC layers Topology and Security of IEEE 802.15.4 and tabulate the protocol stacks utilizing IEEE 802.15.4. 10 K2 CO3
- ii) Explain various network Standards. 3 K2 CO3
- OR**
- b) Illustrate the concepts of Industrial and Automation networks with example. 13 K2 CO3
14. a) Explain in detail about the security services (PGP, S/MIME) for E-mail. 13 K2 CO4
- OR**
- b) Investigate a scenario where a financial institution experiences a man-in-the-middle attack targeting the communication between its clients and the online banking platform. Analyze the role of Transport Layer Security (TLS) protocols, certificate authorities, and secure cipher suites in ensuring the confidentiality and integrity of data transmitted over the network. 13 K2 CO4
15. a) Analyze the role of asset management strategies in optimizing operational efficiency and maximizing return on investment (ROI) for large-scale enterprises. Evaluate the challenges associated with asset lifecycle management, including asset tracking, maintenance scheduling, and risk assessment. Discuss the impact of emerging technologies such as Internet of Things (IoT) and predictive analytics on enhancing asset performance and mitigating downtime. 13 K2 CO5
- OR**
- b) Explain the concept of smart cities and their potential to improve urban livability, sustainability, and resilience through the integration of digital technologies and data-driven decision-making. Analyze the key components of a smart city ecosystem. 13 K2 CO5
- PART - C (1× 15 = 15 Marks)**
16. a) Write a program for transmitting message from client to sever. 15 K3 CO6
- OR**
- b) Write a program to configuration of IP address. 15 K3 CO6