

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
IV B. Tech I Semester Advanced Supplementary Examinations March 2025

AD-HOC AND SENSOR NETWORKS

(Computer Science & Engineering)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

UNIT-I

1. a) Elaborate the Applications of MANETs? [7M]
 b) Classify the different types of MAC protocols used in Ad Hoc Wireless Networks? [7M]
 (OR)
2. a) What are the key characteristics of MANETs? [7M]
 b) Describe the key issues in designing MAC protocols for Ad Hoc Wireless Networks? [7M]

UNIT-II

3. a) Compare and contrast topology-based and position-based routing approaches in Ad Hoc Wireless Networks? [7M]
 b) Describe various solutions proposed to improve TCP performance over Ad Hoc Wireless Networks? [7M]
 (OR)
4. a) Explain different transport layer protocols designed specifically for Ad Hoc Wireless Networks. [7M]
 b) Classify the different types of routing protocols used in Ad Hoc Wireless Networks? [7M]

UNIT-III

5. a) What are the key security requirements in Ad Hoc Wireless Networks? [7M]
 b) Illustrate different types of network security attacks in Ad Hoc Wireless Networks? [7M]
 (OR)
6. a) Demonstrate role of key management in securing Ad Hoc Wireless Networks. [7M]
 b) Explain the different types of Intrusion Detection System and their role in network security. [7M]

UNIT-IV

7. a) Describe the major design issues in Wireless Sensor Networks? What are the factors that affect WSN performance? [7M]
 b) What are the different strategies used to adapt to dynamic nature by Wireless Sensor Networks [7M]

(OR)

8. a) Explain different data collection techniques and their efficiency in Wireless Sensor Networks [7M]
 b) Discuss different clustering techniques and their impact on network efficiency [7M]

UNIT-V

9. a) How different security threats and attacks in WSNs impact network performance and data integrity? [7M]
 b) Compare different simulation tools used in WSN. Which tool is most suitable for large-scale sensor network simulations? [7M]

(OR)

10. a) How do sensor network operating systems optimize power consumption and performance? [7M]
 b) Explain different techniques used for secure data aggregation and their impact on network [7M]
