MOBILE AD-HOC AND WIRELESS SENSOR NETWORKS

Paper : PE-CS-S308A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each unit. All questions carry equal marks.

UNIT–I

1. (a) Explain the differences between contention-based and contention-free MAC protocols in MANETs.

   (b) How does the Location-Aided Routing (LAR) protocol handle node mobility in MANETs?

2. (a) What are the key factors affecting the throughput and latency in MANETs?

   (b) Explain the significance of Quality of Service (QoS) in modelling distributed applications for MANETs.

UNIT–II

3. (a) How does DSDV handle route updates and avoid routing loops?

   (b) How does Dynamic Source Routing (DSR) handle route discovery and maintenance?

4. (a) Describe the working principle of Ad-hoc On-Demand Distance Vector (AODV) routing.

(b) What are the scenarios where OLSR is more suitable than TORA and vice versa?

UNIT-III

5. (a) What are the common threats faced at the link layer in ad-hoc networks?

(b) Explain the concept of trust metrics in trust management for ad-hoc networks.

6. (a) Explain how reputation systems help in mitigating the impact of node misbehaviour in MANETs?

(b) Why is clustering important in Wireless Sensor Networks (WSN)? Describe the role of cluster heads in cluster-based WSNs.

UNIT-IV

7. (a) How do data aggregation schemes help in reducing energy consumption in WSNs?

(b) How does CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance) work in WSN MAC protocols?

8. (a) Explain the vulnerabilities associated with data confidentiality and integrity in WSNs.

(b) Explain the role of geographical routing protocols in WSN.