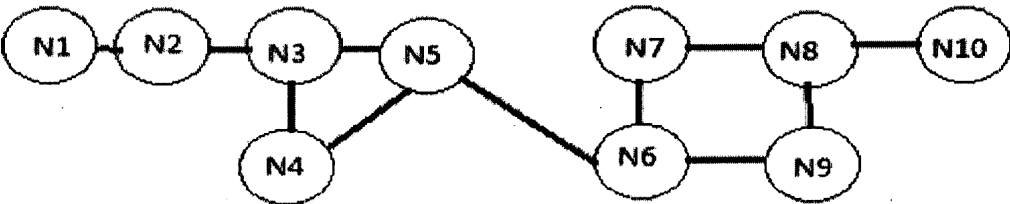# M. Tech. Distributed & Mobile Computing Examination, 2024
(1ˢᵗ year, 1ˢᵗ Semester)

SUBJECT: - Mobile Adhoc Networks

Time: Three hours   Full Marks: 100

Group -A

No. of Questions	Answer Q1 and any *two* questions from this group.	Marks
1.	Write short note on any 2:- a) Super high frequency (SHF) band. b) DSR (Dynamic source routing) protocol. c) Importance of pricing scheme in Ad hoc networks. d) Wireless Mesh networks.	5x2
2.	a) Explain the principle characteristics of mobile computing and the challenges faced by the designers of mobile computing system. b) What are the major issues in designing of multicast routing protocols?	12 8
3.	a) What is the difference between adjacent channel interference and co-channel interference? b) What are the major issues to be considered in designing a MAC protocol for ad hoc wireless networks? c) Explain the differences between cellular networks and ad hoc wireless networks. d) Why is it so important to manage the battery energy in mobile networks?	4 6 6 4
4.	a) Consider the following Fig.1 and explain in details the working of AODV (Ad Hoc on demand distance vector routing) protocol with the example of a message to be sent from node "N1" to "N10". Draw suitable diagram to explain your answer. Fig :1 b) Compare and contrast DSDV protocol with AODV protocol.	12 8
5.	a) What are the advantages and disadvantages of DSDV protocol? b) What are the characteristics of ideal routing protocol for ad hoc networks? c) Disadvantages of CGSR (Cluster head gateway switch routing) protocol? d) Explain the various tables in WRP (Wireless Routing Protocol).	

[Turn over

M. Tech. In Distributed & Mobile Computing 1st Sem. Exam.- 2024
(1st year 1st Semester)

SUBJECT: MOBILE AD-HOC NETWORKS   Full Marks: 50

GROUP-B
Answer question no. 1 and any two from the rest.

1. Write short notes on (Any two) :   5X2=10
   a) The difference between cellular network and ad hoc wireless network.
   b) The difference and similarity between infrastructure networks and ad-hoc networks.
   c) Receiver-Initiated Busy Tone Multiple Access (RI-BTMA) protocol
   d) Pathway graph

2. a) What are the issues in designing MAC protocols?
   b) Compare the pros and cones of schedule-based MAC protocols over reservation-based MAC protocols.
   c) What are the advantages and disadvantages of MAC protocols using directional antenna?
   d) Explain the distributed priority scheduling and medium access in ad-hoc networks.

          5+4+4+7=20

3. a) What are the pros and cones of using multichannel MAC protocols over single-channel MAC protocols?
   b) What are the disadvantages of the BTMA protocol? How are they overcome in the DBTMA protocol?
   c) Describe the receiver-initiated MAC protocol MACA-BI. State it's difference from another receiver-initiated MAC protocol MARCH.   4+(3+3)+(5+5)=20

4. a) What phenomena govern battery lifetime? Suggest a few metrics that can be associated with battery-aware routing techniques.
   b) Explain with diagram how the transmission powers of nodes affect the network topology. What are the advantages of distributed power control algorithms in ad-hoc wireless networks over the centralized power control algorithm?
   c) Define network lifetime. How the lifetime of an adhoc network can be increased by transmission power management.   (4+4)+(2+2)+(2+6)=20

5. a) Why the mobility models play important roles in determining the protocol performance in MANETs?
   b) What are the main categories of mobility models?
   c) What is random way point mobility model? State its advantages and disadvantages.
   d) Describe reference point group mobility model.   3+5+(5+3)+4=20