Group - E

8. (a) What do you mean by dynamic topology of a MANET? What problems does it cause in the design of a routing protocol?

   (b) Differentiate proactive and reactive protocols with example. What is hybrid routing protocol?

(3 + 3) + (4 + 2) = 12

9. (a) What are the advantages and disadvantages of dynamic source routing protocol?

   (b) Explain the working principal of AODV routing protocol.

6 + 6 = 12

MOBILE COMPUTING
(MCAP 3170)

Time Allotted : 3 hrs **Full Marks : 70**

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and any 5 (five) from Group B to E, taking at least one from each group.

Candidates are required to give answer in their own words as far as practicable.

Group – A
(Multiple Choice Type Questions)

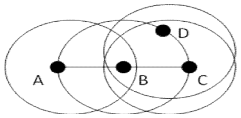
1. Choose the correct alternative for the following: **10 × 1 = 10**

   (i) Which one of the following is not a wireless protocol?
   (a) Bluetooth (b) IrDA
   (c) WAP (d) CSMA/CD.

   (ii) Synchronization is not necessary in _____ multiplexing.
   (a) time division (b) code division
   (c) both (a) and (b) (d) none of these.

   (iii) In a network implementing mobile IP, if a mobile node discovers that it is located in its home network,
   (a) it sends an agent solicitation
   (b) it sends a registration
   (c) it does nothing related to mobility
   (d) it performs decapsulation on received packets .

(iv)



In the above figure, which one of the following activities is responsible for the exposed terminal problem?
(a) When A and C want to transmit to B
(b) A is sending to some other station E and B wants to send to C
(c) Only B wants to transmit to A
(d) Both B and C want to transmit to station D.

(v) Which one of the following is one of the columns of the visitor list maintained by the foreign agent?
(a) Home address (b) Media address
(c) Life time (d) all of them.

(vi) Which one of the following multiple access schemes is used in GSM?
(a) TDMA (b) FDMA
(c) A combination of TDMA/FDMA (d) CDMA.

(vii) NAV signals are used by which one of the following stations in DCF?
(a) The station that wants to send data
(b) The station willing to receive data
(c) All stations in the vicinity of transmitter and receiver
(d) There is nothing called NAV in DCF.

(viii) Which one of the following is a reactive routing protocol in MANET?
(a) Dynamic source routing (DSR) (b) CSMA/CA
(c) Link state routing (d) DSDV.

(ix) In DSR, a route error (RERR) packet is sent during which of the following?
(a) Route discovery (b) Route maintenance
(c) both of these (d) none of these.

(x) Which one of the following statements is false?
(a) AODV uses table-driven routing
(b) AODV outperforms DSR in highly mobile environment
(c) DSR has access to greater amount of routing information than AODV
(d) In DSR, the destination replies only once to the request arriving first and ignores multiple requests.

Group - B

2. (a) Explain the following terms with examples in the context of mobile computing.
(i) User mobility
(ii) Network mobility
(iii) Bearer mobility.

(b) Explain the following attacks in wireless networks.
(i) Masquerading attack
(ii) Denial-of-service attack
(iii) Replay attacks.

6 + 6 = 12

3. (a) Name at least one standard protocol used for
(i) WLAN and (ii) WWAN. Explain two different architectures of wireless LAN with diagram.

(b) Differentiate between contention based and non-contention based MAC protocol? Is CSMA/CA a contention-based MAC scheme?

(c) Explain how MACA solves hidden and exposed terminal problems.

(2 + 4) + (2 + 1) + 3 = 12

Group - C

4. (a) Explain discovery of care-of address in the context of movement of a mobile to a foreign network. What is tunnelling?

(b) What problems would occur if the traditional TCP is used in mobile wireless environment? Explain slow-start TCP operation. How does it help to improve the performance of TCP?

(4 + 2) + (1 + 3 + 2) = 12

5. (a) How are hand-offs handled in snooping TCP? Does snoop TCP provide end-to-end semantics?

(b) Explain indirect-TCP with the help of a suitable schematic diagram. Why are the i-TCP acknowledgements and semantics not end-to-end?

(5 + 1) + (4 + 2) = 12

Group - D

6. (a) What do you understand by 2.5G technology? How is it different from 2G and 3G?

(b) Discuss with diagram the functional architecture of a GSM system.

(3 + 3) + 6 = 12

7. (a) What are the differences between circuit switched and packet switched data communication services?

(b) Discuss with diagram the functional architecture of a GPRS system.

(c) Identify three dissimilarities between GSM and UMTS network.

3 + 6 + 3 = 12