



Name :

Roll No. :

Invigilator's Signature :

CS/M.Tech (CSE)/SEM-3/CSEM-301/2010-11

2010-11

MOBILE COMPUTING

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

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

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : $10 \times 1 = 10$

i) Exponential backoff is not observed in which one of the following ?

- a) CSMA/CA
- b) CSMA/CD
- c) Mobile IP
- d) Medium Access Protocol.

ii) Agent discovery does not use which one of the following procedures ?

- a) Agent registration
- b) Agent cloning
- c) Agent solicitation
- d) Agent advertisement.



vii) The binding warnings message in Mobile IPv4 contains which of the following ?

- a) MN's home address and CN's address
- b) CN's home address and MN's address
- c) CN's home address and MN's home address
- d) CN's address and MN's address.

viii) The process of choking the sender if an acknowledgement is not received for sometime from mobile node is found in

- a) I-TCP
- b) Snooping TCP
- c) M-TCP
- d) Traditional TCP.

ix) Selective retransmission of packet helps to avoid which one of the following ?

- a) End-to-end TCP semantics
- b) More complex s/w on receiver side
- c) Mobility
- d) Go back n transmission.



x) Which of the following is *not* a process found in DSR in Ad Hoc Networks ?

- a) Route advertisement
- b) Route discovery
- c) Route request
- d) Route reply.

GROUP – B

(Short Answer Type Questions)

Answer any *five* of the following.

5 × 4 = 20

2. A cellular service provider decides to use a digital TDMA scheme which can tolerate a S/I of 15 dB in the worst case.

Find the optimal value of cluster size for

- a) omni-directional antennas
- b) 120 degree sectoring
- c) 60 degree sectoring

(Assume $n = 3$)

Should sectoring be used ? If so, which one of 60 degrees or

120 degrees should be used ?



3. A total of 25 MHz is allocated to a particular cell phone system which uses two 20 kHz channels to provide full duplex voice and control channels. Compute the number of channels available per cell, if a system uses seven cell reuse. If 1 MHz of the allocated spectrum is dedicated to control channels, determine an equitable distribution of voice and control channels in each cell of the system.
4. Discuss the different types of handoff in mobile communication.
5. Discuss briefly the solution to the hidden terminal and exposed terminal problems.
6. Discuss the different types of broadcast disk models in data dissemination.
7. Discuss the process of setting up a piconet in bluetooth communication. How are the members added to the piconet ? Discuss the states that a bluetooth device can be in.



GROUP – C

(Long Answer Type Questions)

Answer any *two* of the following.

2 × 20 = 40

8. Discuss the use of hoard profiles in CODA system. What are the commands used to manipulate those profiles ? What do the letters *c+* and *d+* in route expressions of HDB entries signify ?

Discuss the different types of hoard walking and their advantages.

Discuss the process of emulation in CODA file system.

Discuss in detail the process of reintegration in CODA.

9. Discuss the process of route discovery in DSR along with steps performed by host after receiving a route request packet ?

Discuss briefly the error handling in the context of route maintenance in DSR.

Discuss briefly DSDV routing procedure with an example.

Briefly state the AODV routing protocol.



10. Discuss the I-TCP protocol.

Compare the advantages and disadvantages of I-TCP, Snooping-TCP and M-TCP.

11. Write short notes on any *two* of the following :

- a) Push *vs* Pull *vs* Hybrid architecture
- b) Point coordination function
- c) Distributed coordination function
- d) Mobile agent.

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