

Registration no:

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**M.TECH**  
**CSPE204**

Second Semester Examination ~~2013~~ 2014

**MOBILE COMPUTING**

Time: 3 Hours

Max marks: 70

Answer Question No.1 which is compulsory and any five from the rest.

The figures in the right hand margin indicate marks.

1. [2X10]
- a) What is Line of Sight Propagation?
  - b) What is the main difference between Time Division Multiplexing (TDM) and Time Division Multiple Access (TDMA)?
  - c) Explain why collision is an issue in random access protocol but not in controlled-access or channelization protocol.
  - d) What are the basic functions of WAP Gateway??
  - e) What are the steps to be taken to locate a receiver in GSM network?
  - f) What do you mean by hop count, and link affinity in an ad-hoc mobile network?
  - g) Distinguish between forward control channel and reverse control channel.
  - h) List the components of GPRS architecture. Compare the two variants of GPRS support nodes?
  - i) What do you mean by Fixed Wireless Access Schemes?
  - j) Differentiate between Mobile IP and Cellular IP.
2. [5+5]
- a) What is the purpose of using Request to Send (RTS)/Clear to send (CTS) in CSMA/CA(Carrier Sense Multiple Access with Collision Avoidance)? Describe the relative advantages and disadvantages of basic CSMA/CA and CSMA/CA with RTS/CTS protocols.
  - b) What is the difference between guard band and guard time? Why are they important in cellular system?
3. [5+5]
- a) Describe the essential components of a cellular telephone system.
  - b) How mobility management is addressed in GSM system?
4. [6+4]
- a) Suppose there are two mobile subscribers in a nearby location. Draw a functional diagram with proper explanation showing the route signals if the cell phones are
    - (i) operating on the same MTSO (Mobile Telephone Switching Office)
    - (ii) operating on the different MTSO
  - b) If there are 50 channels in a cell to handle all the calls and the average call holding time is 100s per call, how many calls can be handled in this cell with a blocking probability of 2 percent?
5. [5+5]
- a) Define "handoff latency" in Mobile-IP. Describe the working of Mobile IP with respect to Foreign Agent and Home Agent.

- b) What is mobile TCP? How does a supervisory host send TCP packets to the mobile node and to a fixed connection? [6+4]
6. a) What do you mean by hop count, and link affinity in a ad-hoc mobile network? Explain the different advantages of Ad Hoc On-Demand Distance Vector Routing (AODV) over Destination Sequenced Distance Vector (DSDV) algorithm.
- b) What are the pros and cons of Reactive vs. Proactive routing in MANET? [5+5]
7. a) Describe "Hidden Terminal Problem". What is the difficulty of implementing CSMA/CD technique in a wireless environment?
- b) Briefly discuss different multiple access techniques used to assign dedicated channels to multiple users. [6+4]
8. a) What is IEEE 802.11 standard? Describe the frame structure of (Frequency Hopping Spread Spectrum) FHSS and DSSS (Direct Sequence Spread Spectrum) used by IEEE 802.11
- b) How mobile agents differ from a general software agent? What are the various applications of a mobile agent?