Roll No ....

MCIT-205

M.E./M.Tech., II Semester

Examination, June 2013

Mobile Computing

Time : Three Hours

Maximum Marks : 70

Note: Attempt any five questions. All questions carry equal marks.

1. a) Mention the various components of a cellular network and describe them briefly.

   b) Calculate the number of times the cluster of size 4 has to be replicated in order to approximately cover the entire service area of 1569 km² with the adequate number of uniform sized cells of 7km² each.

2. a) Explain the propagation of mobile signals over water or flat open area.

   b) Why is cell splitting needed and explain cell splitting? Also explain the types of cell splitting.

3. a) Obtain path loss from a point to point prediction model for long distance propagation.

   b) Consider the advanced mobile phone system in which an S I ratio of 18dB is required for the accepted voice quality. What should be the reuse factor for the system? Assume path loss exponent n - 4. What will be the reuse factor of the GSM system in which S I of 12dB is required.

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4. a) How is Real time co-channel interference measured.

   b) How can the co-channel interference reduced?

5. a) Write the procedure to allot the channels for the travelling mobile units.

   b) How a reuse-partition scheme reduces the number of cell sites? Explain its with suitable example.

6. a) What do you understand by perception of call blocking from the subscriber.

   b) Calculate the number of setup and voice channels per cell for a cellular system having a total spectrum. Allocation of 60MH, which uses two 25KH, simplex channels to provide full duplex set up and voice channels. Assume that the system is designed with nine cell frequency sense patterns and 1MH, of total spectrum is exclusively allocated for setup channels.

7. a) Differentiate between the mobile controlled handoff and mobile assisted handoff algorithms. Also discuss the different categories of hand off procedures in GSM.

   b) In a system the probability that the signal below the specified receiver threshold is 20 percent and the probability that the signal above the specified co-channel interference level is 15 percent. Then what is the probability of a dropped call when the call has gone through three handoffs?

8. Write short notes on any two of the following :

   a) Multi cost routing protocols.

   b) CDMA

   c) Mobile Agents.

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