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Roll No .. ..

MCIT - 205

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

Examination, June 2016

Mobile Computing

Time : Three Hours

Maximum Marks : 70

Note : Attempt all questions. All questions carry equal marks.

1. a) What are the main reasons for using cellular system? And also describe the dynamic channel allocation in cellular system.   7

   b) What are the main advantages of cellular systems with small cells? How SDM is typically realized and combined with FDM? How does DCA influence the frequencies available in other cells?   7

2. a) Discuss the advantages of using the hexagonal cell shape over the square and triangle cell shape.   7

   b) How data transmission is done from source to destination in secure manner? Give any example of general authentication and privacy procedure for D-AMPS (Digital Advanced Mobile Phone System).   7

3. A cellular system has a tool of 500 duplex voice channels (without frequency reuse). The service area is divided into 150 cells. The required signal-to-co-channel interference ratio is 1db. Consider the path loss exponent k equal to 3, 4 and 5 respectively. Determine
   i) The cell cluster size
   ii) The number of cell clusters in the service area
   iii) The maximum number of users in service at any instruction   14

4. a) Define the term EIRP. What is the path loss in db for tree space propagation model? Express the power received by a mobile station at a distance d from the transmitter in dBm.   7

   b) Discuss the design requirements for base station antennas. What are the different types of base station antennas are normally used?   7

5. a) A cellular system with 25 MHZ tool bandwidth is allocated for duplex communications. Each simplex channel is 30KHZ. The frequency reuse factor for the same is 7. Find
   i) The total number of duplex channels
   ii) The total number of channels per cell   7

   b) How does prioritization of hand-off calls over originating calls help for reducing blocking and drop calls?   7

6. a) What is mobility management? Describe two important aspects of mobility management.   7

   b) The hand-off rate is highly dependent on the cell radius and velocity of the mobile. Establish this statement by taking an example. Show how the cell radius affects the handoff if it becomes half of the original cell radius.   7

7. a) What are the basic requirements for location management in wireless ATM? Also explain the registration and location updation and connection set up for a wireless mobile terminal in a foreign Network.   7

   b) Give a brief note on mobile agents.   7

8. Write short notes on :   14
   a) Wireless mobile ATM
   b) Cell splitting
   c) Dropped call rate
   d) GSM

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