

ALCCS – NEW SCHEME

Code: CT78
Time: 3 Hours

Subject: MOBILE COMPUTING
Max. Marks: 100

AUGUST 2011

NOTE:

- Please write your Roll No. at the space provided on each page immediately after receiving the Question Paper.
- Question 1 is compulsory and carries 28 marks. Answer any FOUR questions from the rest. Marks are indicated against each question.
- Parts of a question should be answered at the same place.

-
- Q.1**
- a. Mention any four challenges of mobile computing.
 - b. Explain the working of RFID and RFID tags.
 - c. Mention various components of information security.
 - d. Explain how sectoring and microcell zone concept improve coverage and capacity in cellular systems.
 - e. Compare FDMA and TDMA schemes.
 - f. Explain mobile application and services.
 - g. Give the classification of mobile data bases. (7×4)
- Q.2**
- a. Explain how cell splitting improves coverage and capacity in cellular systems. (6)
 - b. How does Frequency reuse help channel allocation of cellular systems? (6)
 - c. A cellular service provider decides to use a digital TDMA scheme which can tolerate a signal-to-interference ratio of 15 dB in the worst case. Find the optimal value of N for
 - (i) omnidirectional antennas,
 - (ii) 120° sectoring, and
 - (iii) 60° sectoring.

(Assume a pathloss exponent of $n = 4$ and consider trunking efficiency.) (6)
- Q.3**
- a. Explain RFID tags based on frequency, application area and power level. (6)
 - b. Compare Mobile IP and Cellular IP. (6)
 - c. Explain the features of Wireless Broadband WiMAX. (6)

- Q.4** a. Explain the functions of base station and mobile switching center in cellular architecture. (6)
- b. Explain location management in mobile computing. Mention various phases of location management. (6)
- c. Compare static and dynamic channel assignment techniques. (6)
- Q.5** a. Draw the architecture of Wireless WAN and Wireless LAN. (6)
- b. Explain path loss of radio signals. (6)
- c. In free space propagation model, define antenna gain and received power. Find the far-field distance for an antenna with maximum dimension of 2m and operating frequency of 1000MHz. Assume speed of light $c = 3 \times 10^8$ m/s. (6)
- Q.6** a. Define the terms Session Mobility, Service Mobility and Network mobility. (6)
- b. Describe data dissemination and broadcast in wireless information management. (6)
- c. Explain features of Mobile Transaction Processing. (6)
- Q.7** a. Explain security framework for mobile environment. (6)
- b. Explain human computer interactions and their attributes. (6)
- c. Explain the features of mobile application in WWW. (6)