ALCCS – (NEW SCHEME)

Code: CT78 **Subject: MOBILE COMPUTING**
Time: 3 Hours **Max. Marks: 100**

MARCH 2011

NOTE:
- **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. Explain the principle of frequency reuse in the context of cellular network.

   b. Explain the meaning of IP4 datagram format fields.

   c. Briefly define the different performance metrics that may be used to make the hand-off decision.

   d. Discuss the process of subscriber authentication used in GSM to ensure security.

   e. Why does TCP not work properly in wireless network? Give two reasons.

   f. Differentiate between location dependent and location independent services.

   g. Write four characteristics of good human-computer interface.   **(7×4)**

Q.2   a. Differentiate among FDMA, TDMA and CDMA.   **(6)**

   b. Explain the different approaches used for increasing capacity of the mobile networks.   **(6)**

   c. What is co-channel interference? Given the minimum distance between two co-channels D=81 meters, and Radius of a cell R =3 meters, find the reuse factor of the network.   **(6)**

Q.3   a. Explain the concept of Bluetooth. How does it differ from wireless LAN?   **(6)**

   b. What is the purpose of HLR, VLR, AuC and EIR databases in GSM network? Explain.   **(6)**

   c. Explain how tunneling works in general and especially for mobile IP using IP-in IP, minimal and generic routing encapsulation, respectively.   **(6)**

Q.4   a. What are the transmission impairments that affect wireless signals? Explain.   **(6)**

   b. Compute the distance between two antennas for Line-of-Sight transmission if one of the antenna is 100 meter high and the other is at ground level.   **(6)**

c. Compute the isotropic free space loss at 4GHz for the shortest path to a synchronous satellite from earth at 35,863 km. **(6)**

Q.5 a. Write the algorithm for medium access control logic of IEEE 802.11 DCF. **(6)**

b. Explain the problems of Hidden terminal and exposed terminal in wireless LAN. **(6)**

c. What are the different interleaving and repetition schemes to objects and segments used by Multimedia Object Transfer Protocol? **(6)**

Q.6 a. What are the functions of Wireless Transaction Protocol? Explain the Transaction classes provided by WTP. **(6)**

b. What are the services provided by Wireless Session Protocol? Explain. **(6)**

c. List and briefly define the capabilities provided by mobile IP. **(6)**

Q.7 a. Explain the security issues of Wireless Network that are different from Wired Network. **(6)**

b. Explain the power saving mechanism of IEEE 802.11. Also explain the disadvantages of power saving mechanism. **(6)**

c. Write a short note on any one of the following:

   (i) Pervasive Computing
   (ii) Reduced User Interface
   (iii) Wearable Computing. **(6)**