M. Tech. 2nd Semester (Computer Engg.)
Examination, June–2009

MOBILE AND WIRELESS COMMUNICATION

Paper–MTCE-606-A

Time allowed : 3 hours]   *[Maximum marks : 100*

Note :   *Attempt any five questions.*

1. (a) Is it possible to transmit a digital signal e.g. coded as square wave as used inside a computer, using radio transmission without any loss ? Why ?   10

   (b) Assume all stations can hear all other stations. One station wants to transmit and senses the carrier idle. Why can a collisoin still occur after the start of transmission ?   10

2. (a) What multiplexing schemes are used in GSM and for what purposes ? Think also of other layers apart from the physical layer.   10

   (b) What are advantages and problems of forwarding mechanisms in Bluetooth networks regarding security, power saving and network stability ?

            10

3. (a) Name the inefficiencies of mobile IP regarding data forwarding from a correspondent node to a mobile node. What are optimizations and what additional problems do they cause ? 10

    (b) How does dynamic source routing handle routing ? What is the motivation behind dynamic source routing compared to other routing algorithms from fixed networks ? 10

4. Explain the GSM system architecture and describe their functions. Which types of different services does GSM offer ? Give reasons for a handover in GSM and the problems associated with it. Which are the typical steps for handover ? What types of handover can occur ? 20

5. (a) What is the need for spreading a spectrum ? Explain different types of spread spectrum.

    10

    (b) Why, typically is digital modulaiton not enough for radio transmission ? What are general goals for digital modulation ? What are typical schemes ? 10

6. (a) Recall the problem of hidden and exposed terminals. What happens in the case of such terminals if ALOHA, slotted ALOHA, reservation ALOHA or MACA is used ? 10

    (b) Explain Architecture of Bluetooth. Explain Bluetooth with regard to their ad hoc capabilities.

    10

7. Recall the distance vector and link state routing algorithms for fixed networks. Why are both difficult to use in multihop ad hoc networks ?   20

8. Explain the following :

   (a) CDMA

   (b) GEO

   (c) Indirect and snooping TCP.   20