Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/B.Tech (IT)/SEM-8/IT-802D/2011
2011
MOBILE COMMUNICATION

Time Allotted : 3 Hours   Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

GROUP – A
(Multiple Choice Type Questions)

1.   Choose the correct alternatives for the following :   10 × 1 = 10

    i)   The normal shape of cell in a GSM system is

        a)   circular   b)   rectangular

        c)   hexagonal   d)   octagonal.

    ii)   Modulation scheme used in GSM is

        a)   AM   b)   GMSK

        c)   QPSK   d)   FSK.

    iii)   Cordless telephone standard is

        a)   GSM   b)   DECT

        c)   PDC   d)   None of these.

iv) Frequency reuse can help in which of the following systems ?

a) Cellular system

b) Conventional mobile telephony

c) Paging system

d) Cordless telephone.

v) WAP protocol stack has similarity to

a) OSI model   b) TCP/IP

c) Both of these   d) None of these.

vi) The term 'Hand-Off' is related with

a) Analog communication

b) Digital communication

c) Cellular communication

d) Satellite communication.

vii) In GSM network GPRS stands for

a) Global packet radio system

b) General packet radio services

c) Global packet radio services

d) General packet radio system.

viii) WLAN is

a) Infrastructure network

b) Ad hoc network

c) May be either Infrastructure of Ad hoc network

d) None of these.

ix) Bluetooth uses .... in the physical layer.

    a)   FHSS   b)   DSSS

    c)   DHSS   d)   OFDM.

x) Frequency division duplex technology is used in

    a)   EDGE   b)   HSCSD
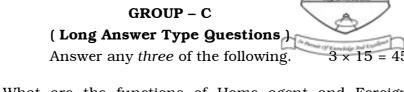
    c)   W-CDMA   d)   GPRS.

GROUP – B
(Short Answer Type Questions)

Answer any *three* of the following.   3 × 5 = 15

2. What do you mean by Mobile Communication ? What are the advantages of Mobile Communication over PSTN ? What is the difference between network protocol and network architecture ?   1 + 2 + 2

3. What is Hand-off ? Differentiate between hard and soft hand-offs. What does GPRS stand for ?   1 + 3 + 1

4. What are the differences between Destination sequence distance vector and the Standard distance vector routing algorithms ? What are the frequency bands of operation for CDMA ?   4 + 1

5. What are the difficulties in using CSMA/CD in wireless LANs ? What alternative methods can be used ?   2 + 3

6. What do you mean by tunnelling and encapsulation in the context of Mobile IP ?

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. a) What are the functions of Home agent and Foreign agent in Mobile IP ? 4

   b) How does I-TCP differ from traditional TCP ? Describe with suitable diagram. 5

   c) Briefly describe the congestion control, slow start and fast retransmit mechanism. 6

8. a) Discuss the three different mechanisms to improve the cell capacity and coverage area in cellular systems. 6

   b) What is MANET ? 2

   c) What is Micro-cell zone concept ? 3

   d) Briefly differentiate between GSM and CDMA technologies. 4

9. a) Draw the system architecture of the GSM network and discuss VLR, HLR on that context. 6 + 3 + 3

   b) Why is the shell structure supposed to be a Hexagon in a mobile network ? 3

10. a) Define WLAN. 3

    b) Illustrate the system architecture of IEE 802. 11 WLAN. 6

    c) Explain, with diagram, the protocol architectures and manage of IEEE 802.11. 6

11. a) Explain the concept of frequency reuse in cellular systems. 5

    b) What do you mean by co-channel interference and system capacity ? 4

    c) Discuss three different mechanisms to improve the cell capacity and coverage area in a cellular system. 6