2012

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 Question)

1.   Choose the correct alternatives for any *ten* of the following:

                                                         10 x 1 = 10

   i)   FHSS, DSSS and OFDM are ……………… Layers
        specifications.

        a)   Physical   b)   Data Link

        c)   Network   d)   Transport

   ii)   CDMA is applied in

        a)   Physical Layer   b)   Network Layer

        c)   MAC Layer   d)   Transport Layer

   iii)   Indoor propagation model for mobile communication
        specifies loss due to heavy inventory as

        a)   6-11 dB

        b)   7-11 dB

        c)   8-11 dB

        d)   9-11 dB at 1300 MHz.

iv) Handoff effectse is

    a)   Call dropping

    b)   Temporary disconnection

    c)   Call termination

    d)   May be all.

v) Mobile IP refers to

    a)   mobility   b)   IP tuning

    c)   IP within IP   d)   all of these.

vi) Dynamic source routing is

    a)   ad-hoc routing   b)   proactive process

    c)   on demand routing   d)   both (a) and (c).

vii) Bluetooth is

    a)   wireless LAN

    b)   WAN

    c)   short range infrared ad-hoc

    d)   short range wireless ad-hoc LAN service

viii) The access method for wireless LANs defines by IEEE 802.11 is based on

    a)   CSMA   b)   CSMA/CD

    c)   CSMA/CA   d)   Token passing.

ix) The profile synchronization in Bluetooth is achieved by

    a)   OBEX   b)   TCS BIN

    c)   at commands   d)   PPP.

x)   Slow start and fast retransmit is related to

   a)   transport layer

   b)   data link layer

   c)   network layer

   d)   all of these.

xi)   GPRS technology is a

   a)   general packed radio service used in PC

   b)   service used in 3G

   c)   mobile internet service used in 3G

   d)   all of these.

xii)   Microwave is suitable for

   a)   point-to-point communication

   b)   omni-direction communication

   c)   broadcast communication

   d)   none of these.

GROUP – B

(Short Answer Type Questions)

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

2.   What are the main reasons for using cellular system? Describe the dynamic channel allocation in cellular system.   2+3

3.   Describe the system architecture & protocol architecture of IEEE802.11 with suitable diagram.

4.   Describe the protocols of a GPRS system.

5.   What is handover? How is it controlled?   3+2

6.   Discuss the advantages and disadvantages of radio wave and infrared transmission technology in wireless network.   2+3

GROUP – C

(Long Answer Type Questions)

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

7. a) In what situations can collisions occur in IEEE 802.11. Hyper LAN 2 & Bluetooth.

    b) Distinguish between collisions on PHY & MAC layer.

    c) How do the three wireless networks try to solve the collision or minimize the probability of collision?

    d) If Bluetooth is a commercial success, what are the remaining reasons for the use of infrared transmission for WLANs?   4+3+5+3

8. a) What are the services provided in a GSM system?

    b) Explain how a mobile station connects to & talks with another mobile station.

    c) How will in-between interfaces differ when a mobile station connects to a PSTN destination?   3+7+5

9. a) What are the functions of snooping sub-layer in the snooping TCP protocol?

    b) Why is the presumption that congestion is the major factor limiting the data now valid for mobile and wireless networks?

    c) What are the differences in data flow control in mobile and fixed networks?

    d) List the deficiencies in conventional TCP on fixed line network that want modifications for the mobile network connected to the internet.   5+4+3+3

10. a) In a GSM cellular network, explain the role of OSS. Which section is responsible for interaction with public networks & how?   2+5

    b) Explain, why, we can increase the number of subscribers in CDMA freely.   3

c) If an AMPS cellular operator is allocated 12.5 MHz for each simplex band and if channel bandwidth is 30 kHz, total spectrum allocations is 2.5 MHz. Guard BW is 10 kHz, find the number of channels available in an FDMA system? 5

11. a) Draw a schematic diagram to show how satellites can be used to connect to connect mobile devices & ISDN network. What are the functions of Gateway Link & Mobile user link? 6+2

b) Mention the benefits of analyzing the PCS services using "Indoor Propagation Model". 5

c) What is an IS 95 system? 2

12. Write short notes on any *three* of the following: 3 x 5

a) CDMA

b) Geosynchronous satellite

c) FDMA

d) Mobile computing

e) 3G-Mobile communication.

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