Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Tech(IT)/SEM-8/IT-802D/2013

2013
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 any *ten* of the following : 10 × 1 = 10

i) IEEE 802.11 supports

a) Infrared b) DSSS

c) FSS d) all of these.

ii) Bluetooth uses

a) 4 GHz ISM band b) 2·5 GHz ISM band

c) 2GHz ISM band d) 3·6 GHz ISM band.

iii) In intra-MSC handover, the hand-off decision is taken at

a) BTS new b) BSC new

c) BTS old d) BSC old.

iv) Which of the following is a signal parameter ?

a) Amplitude b) Frequency

c) Phase d) All of these.

v) A single frame in GSM frame structure consists of

a) 8 time slots b) 10 time slots

c) 12 time slots d) 16 time slots.

vi) Frequency Division Duplex technology is used in

a) HSCSD b) W-CDMA

c) GPRS d) EDGE.

vii) A bluetooth frame needs ..... μs for hopping and control mechanism.

a) 625 b) 259

c) multiple of 259 d) 3.

viii) The cell having the same number in the adjacent cluster using the same set of RF channels is termed as

a) macro-cell b) selective cell

c) co-channel cell d) adjacent cell.

ix) IEEE 802.11 based network uses

a) 5·2 – 5·9 GHz b) 2·4 – 2·5 GHz

c) 3·5 – 3·8 GHz d) 4·5 – 4·8 GHz.

x) Hard hand-off was observed till

a) 1st generation b) 2nd generation

c) 3rd generation d) none of these.

xi) Modulation scheme used in GSM is

a) AM b) GMSK

c) QPSK d) FSK.

xii) Which of the following IR-wLAN suffers from multipath dispersion ?

a) Point-to-point b) Quasi-diffuse

c) Pure diffuse d) None of these.

GROUP – B

(Short Answer Type Questions)

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

2. a) Describe the prioritization phase of HIPERLAN1.
   b) What is handoff ? 4 + 1
3. Discuss the advantages and disadvantages of radio wave and IR transmission technology.
4. a) What are the fundamental differences between HTTP and WAP ?
   b) What is the difference between soft handoff and hard handoff ? 3 + 2
5. a) What are the advantages and disadvantages of I-TCP ?
   b) What is Micro-cell zone concept ? 3 + 2
6. a) How does frequency re-use take place in cellular system ?
   b) What is snooping TCP ? 3 + 2

GROUP – C

(Long Answer Type Questions)

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

7. a) Explain the functionalities of Radio layer and L2CAP layer of Bluetooth. Also mention their placement in the Bluetooth architecture.
   b) What is SCO ?
   c) In what situations can collisions occur in IEEE 802.11, HIPERLAN2 and Bluetooth networks and why ?
   d) What are the networks that can be formed with Bluetooth devices ? 8 + 2 + 2 + 3

8. a) What is the problem of hidden terminal ? How does IEEE 802.11 deal with it ? Describe in detail.

b) What is Mobile Adhoc Network ? What are its advantages and disadvantages with respect to infrastructured networks ? (3 + 6) + (2 + 4)

9. a) What is the difference between a care-of-address and co-located care-of-address ?

b) How does a reverse tunnel differ from a forward tunnel in mobile IP protocol ?

c) Briefly describe GPRS technology. 3 + 4 + 8

10. a) Describe the WAP architecture and protocol stack.

b) Discuss congestion control mechanisms.

c) Describe briefly the various dynamic location update schemes. 8 + 2 + 5

11. Describe power management scheme in IEEE 802.11 infrastructured and ad-hoc networks with suitable examples and diagrams.

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

a) Destination Sequenced Distance Vector (DSDV) Routing protocol

b) Security in Bluetooth Networks

c) Security in WAP

d) Direct Sequence Spread Spectrum Technique

e) Code Division Multiple Access Technique

f) WATM.