



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.Tech/CSE/SEM-8/CS-802A/2013**

**2013**

**MOBILE COMPUTING**

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 :  
 $10 \times 1 = 10$

i) A single frame in GSM frame structure consists of

- |                  |                  |
|------------------|------------------|
| a) 10 time slots | b) 8 time slots  |
| c) 4 time slots  | d) 7 time slots. |

ii) IEEE 802.11b has the data transfer rate of

- |            |                   |
|------------|-------------------|
| a) 54 mbps | b) 400 mbps       |
| c) 11 mbps | d) none of these. |

iii) Near far problems occur in

- |         |          |
|---------|----------|
| a) TDMA | b) FDMA  |
| c) CSMA | d) CDMA. |



- iv) The access method defined by wireless LAN 802.11 is based on
- a) CSMA
  - b) CSMA/CD
  - c) CSMA/CA
  - d) Token Passing.
- v) Bluetooth network can have ..... no. of masters.
- a) one
  - b) two
  - c) three
  - d) eight.
- vi) FHSS, DSSS and OFDM are ..... layer specification.
- a) Physical
  - b) Data link
  - c) Transport
  - d) Network.
- vii) A Bluetooth frame needs .....  $\mu$ s for hopping and control mechanism.
- a) 625
  - b) 259
  - c) 3
  - d) a multiple of 259.
- viii) WCMP is the component of
- a) Session layer
  - b) Transport layer
  - c) Security layer
  - d) Application layer.
- ix) Modulation scheme used in GSM is
- a) AM
  - b) GMSK
  - c) QPSK
  - d) FSK.
- x) Cordless telephone standard is
- a) GSM
  - b) DECT
  - c) PDC
  - d) None of these.



xi) The normal shape of shell in GSM is

- a) Hexagonal
- b) Circular
- c) Rectangular
- d) Triangular.

xii) The term 'Hand off' is associated with

- a) Analog communication
- b) Digital communication
- c) Satellite communication
- d) Cellular communication.

**GROUP - B**

**( Short Answer Type Questions )**

Answer any *three* of the following.

3 × 5 = 15

2. Compare between WCDMA and CDMA2000.
3. Briefly describe the GPRS technology.
4. Explain the GSM Network Architecture.
5. A cellular system uses FDMA with a spectrum allocation of 12.5 MHz in each direction. A guard band at the edge of the allocated spectrum of 10 kHz and a channel bandwidth of 30 kHz. What is the number of available channels ?
6. Indicate the difference between DSDV and normal DV routing algorithm.

**GROUP - C**

**( Long Answer Type Questions )**

Answer any *three* of the following.

3 × 15 = 45

7. What is frequency re-use in a cellular network ? Prove that for a hexagonal geometry the co-channel re-use ratio is given by  $Q = \sqrt{3N}$ , where  $N$  is the number of cells in a cluster. Also prove that  $N = i^2 + j^2 + ij$ , where  $i, j$  are shift parameters.

3 + 7 + 5



8. What is the difference between a care-of address and a co-located care-of address ? Explain the difference between a forward tunnel and a reverse tunnel. How does reverse tunnelling help when the time-to-live for packets at a foreign agent is small ? What is the hidden node problem and how is it resolved in WLAN ?  $4 + 4 + 3 + 4$
9. Draw a comparative study of GSM and CDMA and evaluate the better choice. What are the major highlight and concept of 3G network ? What is WAP ? Explain the WAP gateway.  $6 + 5 + 4$
10. What is mobility management ? What are major issues involved in mobility management ? What are the functions of home agent and foreign agent in mobile IP ?  $4 + 7 + 4$
11. Write short notes on any *three* of the following :  $3 \times 5$
- a) Iridium Satellite System
  - b) Bluetooth Protocol Stack
  - c) Frequency Hopping Spread Spectrum
  - d) Bluetooth protocols
  - e) WLL architecture.
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