Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Tech(ECE)/SEM-8/EC-804C/2012

2012

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 × 1 = 10

i) The basic frequency region for GSM is

a) 900 MHz b) 1800 MHz

c) 1900 MHz d) all of these.

ii) Personal mobility can be supported because of

a) SIM b) HLR

c) VLR d) EIR.

iii) The shortest waiting time for medium access WLAN is

a) SIFS b) DIFS

c) PIFS d) none of these.

iv) The access method for wireless LANs defined by IEEE802.11 is based on

a) CSMA b) CSMA/CD

c) CSMA/CA d) Token passing.

v) A piconet can have at most

a) 8 slaves b) 7 slaves

c) 6 slaves d) 5 slaves.

vi) IEEE 802.11 supports

a) infrared

b) frequency hopping spread spectrum

c) direct sequence spread spectrum

d) all of these.

vii) No. of bits on IPv6 address is

a) 64 b) 32

c) 128 d) 256.

viii) The profile synchronization in Bluetooth is achieved by

a) OBEX b) TCS BIN

c) AT Commands d) PPP.

ix) Ad-hoc networks are examples of which types of networks ?

a) Fixed and wired b) Mobile and wired

c) Fixed and wireless d) Mobile and wireless.

x) Mobile IP refers to

a) Mobility b) IP tunnelling

c) IP within IP d) all of these.

xi) Which mobile generation technology is EDGE ?

a) 2G b) 3G

c) 2.5G d) 1G.

xii) Time required for hopping & control mechanisms for Bluetooth frame is

a) 625 μsec b) 312.5 μsec

c) 625 msec d) 312.5 msec.

GROUP – B

(Short Answer Type Questions)

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

2. Discuss the role of the following entities with respect to GSM network architecture :

   Mobile Switching Centre (MSC), Home Location Register (HLR) and Authentication Centre (AuC).

3. What is Handover ? Discuss with diagram the Intra-MSC handover procedure in GSM network.

4. Explain IEEE 802.11 MAC packet structure.

5. How mobile station is attached and detached with the SGSN of the GPRS network ? Explain the PDP context activation in GPRS network. 2 + 3

6. What are hidden terminal problem & exposed terminal problem ? How these problems can be solved ? 2 + 3

GROUP – C
(Long Answer Type Questions)

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

7. Describe the GPRS network architecture with a suitable diagram. How is MS attached and detached with the SGSN of the GPRS network ? Explain the PDP context activation in GPRS network. 8 + 4 + 3

8. State some advantages of Wireless LANs. Why is CSMA/CD not suitable for Wireless LAN ? With a flowchart describe how back-off timer of contention window is set in CSMA/CA for WLAN. Compare between the Distributed Co-ordination Function (DCF) and Point Co-ordination Function (PCF). What are the different types of handoff occurring due to the mobility of the roaming user ? 2 + 2 + 7 + 2 + 2

9. What is mobile IP ? Why is mobile IP used ? Describe with a neat diagram, how mobile IP works. How is triangular routing performed in MIPv4 ? 1 + 2 + 8 + 4

10. What is WAP ? Why is WAP used ? What are the WAP components used in mobile devices ? With a neat diagram explain the WAP architecture. 2 + 2 + 4 + 7

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

    a) Signalling protocol stack of GSM

    b) Bluetooth protocol stack

    c) Reverse Tunnelling in MIPv4

    d) Destination-Sequenced Distance Vector (DSDV) protocol

    e) Dynamic Source Routing (DSR) protocol.