Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Tech (ECE-N)/SUPPLE/SEM-8/EC-804C/2010

2010
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 forward band in MHz of AMPS standard is

a) 869 – 894 b) 824 – 849

c) 890 – 915 d) 935 – 960.

ii) Of the various radio propagation phenomena at high frequencies, which of them is predominant at indoors ?

a) Scattering b) Reflection

c) Diffraction d) LOS.

iii) From the following examples, determine the system which is NOT full duplex

a) cellular phone b) cordless phone

c) PC-modem d) pager.

iv) In ....., a mobile phone always communicates with just one base station.

a) roaming b) a hard handoff

c) a soft handoff d) a roaming handoff.

v) The access method for wireless LANs as defined by IEEE 802.11 is based on

a) CSMA b) CSMA/CD

c) CSMA/CA d) Token passing.

vi) A router reads the ..... address of a packet to determine the next hop.

a) IP b) MAC

c) source d) ARP.

vii) The range of Bluetooth piconet & scatternet respectively are

a) 60m – 80m b) 5m – 10m

c) 10m – 15m d) 10m – 100m.

viii) The protocols for the exchange manager of a Palm OS is/are

a) TCP/IP b) UDP

c) MAC d) ARP.

ix) The architecture of WAP consists of ..... layers.

a) 5 b) 6

c) 7 d) 3.

x) The duration of a frame in a multi frame TDMA is

a) 120 ms b) 155 ms

c) 130 ms d) 100 ms.

xi) The maximum number of processes supported by Windows CE is

a) 44 b) 32

c) 20 d) unlimited.

xii) RS-232 C represents standard for

a) interface between modem and transmission facility

b) various transmission channels

c) end-to-end performance of communication system

d) interface between terminals and modems.

GROUP – B

(Short Answer Type Questions)

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

2. What are the advantages & disadvantages of wireless LAN ? Under what situation is a wireless LAN desirable over LAN ?

3. State the telephony interfaces available in Palm OS. Why are these interfaces important ?

4. Compare the performance of FDMA, TDMA & CDMA briefly.

5. Explain in brief the cellular telephony concept, indicating the role of BS & MS in transmission & reception of voice calls.

6. Name the three classes of applications that are considered for Bluetooth technology and identify those which can also be IEEE 802.11 and HIPERLAN WLAN technologies.

7. What is WAP push ? Explain how a push is different from a pull.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following questions.

$3 \times 15 = 45$

8. Describe the protocol stack of Bluetooth. Explain how a new Bluetooth device discovers a Bluetooth network. Discuss the security principles of Bluetooth. 5 + 5 + 5

9. Explain the working of Mobile IP. State the challenges with Mobile IP with respect to high speed mobility. How does Cellular IP solve some of these challenges ? 5 + 5 + 5

10. State the various layers of Windows CE architecture & explain how communications & networking are handled by the layers. 5 + 10

11. a) A not so rich hacker uses an old computer & brute force to break into some wireless systems. It take him 1 ms on average to test a key to see if it is the right one for an encryption independent of the algorithm employed. Determine the time he would take to break into an IEEE 802.11 system in the worst case.

    b) State the MAC services of IEEE 802.11 that are not provided in traditional LANs. 10 + 5

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

    a) Limitations of IPv4 that are overcome by IPv6.

    b) WAP protocol stack.

    c) Security considerations in Palm OS.

    d) Slotted Aloha.

    e) IEEE 802.11 a, b and g protocols.

    f) Wireless Broadband (WiMAX).