Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Tech (ECE (N))/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 : $10 \times 1 = 10$

   i) When a primary device asks a secondary device if it has data to send, then it is called

   a) Polling b) Selecting

   c) Reserving d) Backing off.

   ii) A Wireless LAN using FHSS hops 10 times per cycle. If the bandwidth of the original signal is 10 MHz, and 2 GHz is the lowest frequency, the highest frequency (GHz) of the spectrum is

   a) 2·2 b) 2

   c) 2·1 d) 3.

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iii) The station which is not mobile in an ESS is

a) AP b) Server

c) BSS d) MT.

iv) The path followed by a datagram while it is encapsulated is known as

a) Tunnel b) Link

c) Node d) IP Layer.

v) What is the basic access method for WLANs as defined by IEEE 802·11 ?

a) LLC b) PCF

c) DCF d) BFD.

vi) CCK (Complementary Code Keying) encoding method used in

a) 802·11 DSSS

b) 802·11 FHSS

c) 802·11a OFDM

d) 802·11b HRDSSS.

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vii) If the bit rate is 9000 bps for a QAM signal of the baud rate 1800, how many bits are there per signal unit ?

a) 3 b) 4

c) 6 d) 5.

viii) In which of the following handoff method the BSs or APs monitor the signal quality from the mobile and report the measurements to the MSC

a) Mobile Controlled Handoff (MCHO)

b) Network Controlled Handoff (NCHO)

c) Mobile Assisted Handoff (MAHO)

d) Both (b) and (c).

ix) In the hand off procedure, characterized by a mobile having a radio link with only one AP at any time is called

a) Hard Handoff b) Soft Handoff

c) Backward Handoff d) Forward Handoff.

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x) Which one of the following is true statement ?

a) MANET is established using service discovery and then services of Jini, TCP/IP, Bluetooth and WiFi are discovered.

b) MANET discovers services by establishing Bluetooth and WiFi for service discovery.

c) MANET is established using service location protocol.

d) MANET is established using ad-hoc service discovery protocol.

xi) WLAN service uses

a) 802·11 protocol and long distance communication at high data rates

b) 802·16 protocol and long distance communication at small data rates

c) 802·16 protocol and short distance communication at high data rates

d) 802·11 protocol and short distance communication at high data rates.

xii) In CSMA/CA medium access method the waiting time period between RTS and CRS is known as

a) SIFS b) DIFS

c) Back off time d) ACK time.

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GROUP – B

(Short Answer Type Questions)

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

2. a) Discuss the effect of multi-path propagation in wireless communication.

   b) Define hopping sequence and dwell time. 3 + 2

3. Mention the features of infrared and radio transmission in WLAN and also state their advantages and disadvantages. 2 + 3

4. Briefly discuss about the MCM and OFDM modulation techniques. Explain the importance of MCM modulation technique for higher data rates. 4 + 1

5. Describe the properties of MANETs. How does a MANET differ from a fixed infrastructure network ? 2 + 3

6. What is meant by generic routing encapsulation ? What is the use of network address translation ? 3 + 2

GROUP – C

(Long Answer Type Questions)

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

7. a) List the difference between S/T/F/CDMA.

   b) Why does MAC scheme in wired network fail in wireless networks and how does the carrier sense multiple accesses with collision avoidance (CSMA/CA) scheme work ?

   c) Briefly explain the architecture and features of IEEE 802·11. 5 + 4 + (4 + 2)

8. a) Write the main differences between Adhoc networks and other networks.

   b) What advantages do Adhoc Network offer ? Explain in detail by giving suitable example.

   c) What are the main problems in signal propagation ? Why is reflection both useful and harmful ?

   4 + 5 + (2 + 2) + 2

9. a) Briefly discuss the hand off management in WLAN.

   b) Explain the operation of MIPv6.

   c) Write down the advantages of MIPv6 compared with MIPv4. 5 + 6 + 4

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10. a) Explain the protocol used for finding a co-located care of address.

    b) When is the DHCP used ? Explain the operation of DHCP protocol.

    c) How does a DHCP server bind a mobile node with an IP address ?

    d) How does mobility binding optimize the route ?

    3 + (1 + 5) + 3 + 3

11. a) Show master-slave architecture in a piconet of Bluetooth devices.

    b) what are the features of Palm OS ?

    c) Explain Symbian OS architecture. 5 + 5 + 5

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