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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. \quad \hbox{Choose the correct alternatives for any $\it ten$ 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		
	enca	apsulated is knowr	ı as				
	a)	Tunnel		b)	Link		
	c)	Node		d)	IP Layer.		
v)	Wha	at is the basic acco	ess n	aeth	od for WLANs as defined		
	by I	EEE 802·11?					
	a)	LLC		b)	PCF		
	c)	DCF		d)	BFD.		
vi)	CCK	(Complementary	7 Cod	le K	Ceying) encoding method		
	used in						
	a)	802·11 DSSS					
	b)	802·11 FHSS					
	c)	802·11a OFDM					
	d)	802·11b HRDSSS	S.				
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CS/B.Tech (ECE (N))/SEM-8/EC-804C/2010 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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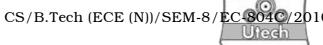
- x) Which one of the following is true statement?
 - a) MANET is established using service discovery and then services of Jini, TCP/IP, Bluetooth and WiFi are discovered.
 - b) MANET discovers services by establishing Bluetooth and WiFi for service discovery.
 - c) MANET is established using service location protocol.
 - d) MANET is established using ad-hoc service discovery protocol.

xi) WLAN service uses

- a) $802 \cdot 11$ protocol and long distance communication at high data rates
- b) 802·16 protocol and long distance communication at small data rates
- c) $802 \cdot 16$ protocol and short distance communication at high data rates
- d) $802 \cdot 11$ 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.

 $3 \times 5 = 15$

- 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

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(Long Answer Type Questions)

Answer any three of the following.

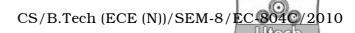


- 7. a) List the difference between S/T/F/CDMA.
 - b) Why does MAC scheme in wired network fail in wireless networks and how does the carrier sense multiple accesses with collision avoidance (CSMA/CA) scheme work?
 - c) Briefly explain the architecture and features of IEEE $802 \cdot 11$. 5 + 4 + (4 + 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