Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E –IIst SEMESTER–EXAMINATION – JULY- 2012

Subject code: 1720101 **Date: 06/07/2012**

Subject Name: Wireless Networking & Mobile Computing

Time: 10:30 am – 13:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 (a)

(i) Can barker code be used for CDMA(code division multiplexing)? Explain the coding and spreading of data of data if data bits are 101 and key sequence is 010100100010110011. **04**

(ii) Why is digital modulation not enough for radio transmission? What are general goals for digital modulation? **03**

(b)

(i) Which basic services are provided by MAC layer? **01**

(ii) How hidden terminal problem is solved by IEEE 802.11? **03**

(iii) One way to decrease the error probability of frames is to use shorter frames. Explain the fragmentation of user data into smaller parts, in IEEE 802.11? **03**

Q.2 (a) **07**

(i) What is the need of following numbers? **04**

a. Mobile station international ISDN number(MSISDN)
b. Temporary mobile subscriber identity(TMSI).

(ii) Explain the working of physical layer in DECT(digital enhanced cordless telecommunications). **03**

(b) **07**

(i) Explain the term long term fading and short term fading. **04**

(ii) What is indirect TCP? What are the drawbacks of Indirect TCP? **03**

OR

(b) **07**

(i) Which of the MAC schemes can give hard guarantees related to bandwidth and access delay? **04**

(ii) Explain the working of Mobile TCP. **03**

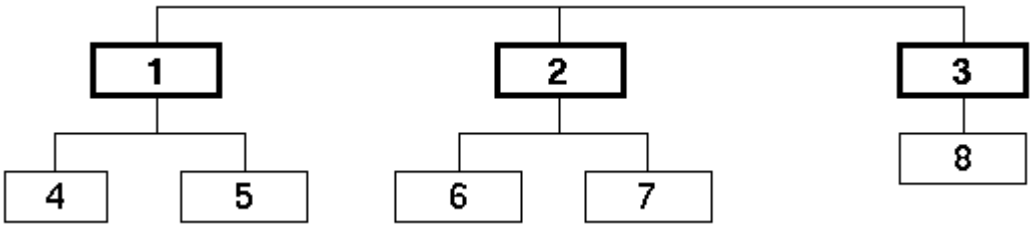
Q.3 (a) Which two additional fields are there in Destination sequence distance vector(DSDV) algorithm? In which situations DSDV performs poorly? Following is the routing table of H6 at one instance. Determine the placement of node in the network. **07**

Dest	Next Hop	Metric	Seq.No.	Install
H1	H4	3	S406_H1	T001_H6
H2	H4	2	S128_H2	T001_H6
H3	H4	3	S564_H3	T001_H6
H4	H4	1	S710_H4	T002_H6
H5	H7	3	S392_H5	T001_H6
H6	H6	0	S076_H6	T001_H6
H7	H7	1	S128_H7	T002_H6
H8	H7	2	S050_H8	T002_H6

(b) Explain the two basic groups of logical channels: traffic channels and control channels in GSM. **07**

OR

Q.3 (a) In which two problems the task of dynamic source routing(DSR) is divided? Explain the route discovery for a route from node 1 to node 8 using DSR in the following figure. **07**



(b) How power management in IEEE 802.11 infrastructure networks differ from power management in IEEE 802.11 ad hoc networks? **07**

Q.4 (a) **07**

(i) Write a WML and WMLScript code snippet that shows replacement of alphabet with number. (For example a should be replaced by 1, b should be replaced by 2 and so on). And add "-" in the middle of the number. If the string is abcd, replace it by 1234 and add – so final result is 12-34. If the string is of odd characters replace "-" with middle character. For abc, replace it by 123 and then put "-" so the string becomes 1-3. **04**

(ii) Write XHTML MP code snippet to prepare result of 5 students with marks of 3 subjects and if he has "FF" grade show it in red, otherwise in green. Assume the necessary fields. **03**

(b) Explain the Bluetooth protocol stack. **07**

OR

Q.4 (a) **07**

(i) Write a WML and WMLScript code snippet that generates a random number and performs that many right circular shifts in the given string. For example, number generated is 2 and string is tree, 2 circular right shifts are performed, the result is eetr. **04**

(ii) What is the meaning of following in NS2 and what should be written in the script before executing this statement? **03**
$ns duplex-link $n0 $n2 5Mb 2ms DropTail

Q.4 (b) Explain tunneling and reverse tunneling in mobile IP. **07**

Q.5 (a) Explain the term Foreign agent, home agent and care of address. **07**

(b) **07**

(i) Distinguish between infrastructure and ad hoc networks. **04**

(ii) Distinguish between infra red and radio transmission. **03**

OR

Q.5 (a) What is frequency shift keying? Explain minimum shift keying with data bits 1100101. **07**

(b) **07**

(i) Distinguish between blocking and scattering. **04**

(ii) Distinguish between MAC and PHY management Wireless LAN. **03**

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