Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Sem-II Examination July 2010

Subject code: 720101

Subject Name: Wireless Networking & Mobile Computing

Date: 05 /07 /2010 **Time: 11.00am – 1.30pm**

Total Marks: 60

Instructions:

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

Q.1	**(a)**	1. What does a beacon contain? How synchronization can be achieved within infrastructure based networks?	**03**
		2. What does Care-of address define? Which are the two different possibilities for the location of the COA?	**03**
	(b)	1. Explain the direct sequence spread spectrum. For the user data 01 and 11 chip barker code 10110111000 – which spread signal is generated and how it is demodulated?	**03**
		2. To locate a Mobile station (MS) and to address the MS , which numbers are needed?	**03**
Q.2	**(a)**	1. What different roles devices can play in piconet? What steps a device has to take to participate in more than one piconet?	**03**
		2. If FM radio signals pass through trees in an alley, What kind of attenuation occur? What if instead of FM radio signals, GSM radio transmission is obstructed by trees in an alley?	**03**
	(b)	1. Explain GPRS architecture reference model.	**03**
		2. Explain classical Aloha, Slotted Aloha and reservation Aloha. Do they guarantee maximum delay or minimum throughput?	**03**
		OR	
	(b)	1. Why indirect TCP is developed? How packet loss is handled in case of fixed network to mobile host and mobile host to fixed network? How does I-TCP handle the handover?	**03**
		2. Explain the three classes of transactional service provided by Wireless transaction protocol.	**03**
Q-3	**(a)**	1. i) What information is stored in the God(General Operations Director) object? Write a command for ns2 that moves node 1 after 43 time ticks towards destination (268.5,176.5) at a speed of 2.69 m/s. Write a command for ns2 to load the God object with shortest path between node 1 and 2 being 2 hops.	**03**
		(ii) How can a node in ns2 be set up to use dynamic source routing protocol?	
		2. Write a WML and WMLScript for the following.	**03**
		(i) Enter a string containing playername-Runs-innings-Timesnotout. For example Sachin-8430-230-18.	
		(ii) Check that the string contains four elements.	
		(iii) Calculate the batting average.	
		(iv) Print playername and batting average in a tabular form	
	(b)	1. Explain digital enhanced cordless telecommunications (DECT) multiplex and frame structure.	**03**

2. Write an XHTML-MP for the following. **03**
   (i) Enter the name of the depositor, Account number, type of account and balance amount.
   (ii) Provide options – Withdraw or Deposit.
   (iii) According to the option selected, set the amount.
   (iv) Display in tabular form name, account number, type of account and balance in Times New Roman with table heading with font size 16 and data with font size 12.

OR

Q-3 **(a)** 1. Write ns2 command line for the following.
   (i) Create a UDP agent and attach it to node0 **03**
   (ii) Create a constant bit rate traffic generator with packet size 1000 bytes and packet should be sent every 0.004 seconds.

2. Write a WML and WMLScript for the following. **03**
   (i) Ask user to input name and height in meters.
   (ii) Give radio buttons to convert the height into centimeters and inches
   (ii) Store the name and height converted into a string separated by 3 spaces and display.

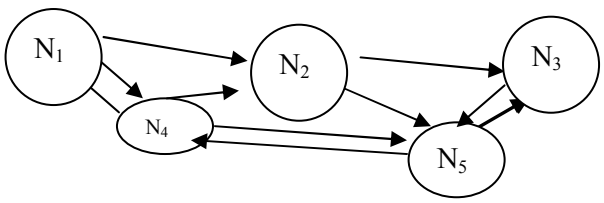
(b) 1. Explain coding and spreading of data from sender A and sender B. If A wants to send 110 and key A_k is 010100100010110011 and if B wants to send 010 and key B_k is 000110101000010111 with CDMA basic function **03**

2. Write XHTML-MP for the following. **03**
   (i) An electricity board site asks for username and number of units consumed. Underline the label of the input box and units should have numeric field length of 8.
   (ii) Rates for the energy consumption are : first 100 units 60P per unit
   For next 200 units – 80P per unit
   For 300 units – 90P per unit.
   (iii) Display charges with usernames

Q-4 **(a)** 1. Explain WAP push architecture. How many operations are offered by push access protocol? **03**

2. Explain the advantages and disadvantages of the following in relation to classical TCP improvements. **03**
   (i) Fast retransmit/fast recovery. (ii) Transmission/time out freezing

(b) 1. What is the motivation behind dynamic source routing compared to other routing algorithms from fixed networks? Apply the route discovery to the following figure for a route from N_1 to N_3 at time t_1 assuming that bi directional links hold. **03**



2. For what purpose control channels are used in GSM system? Describe the three groups of control channels. **03**

OR

Q-4 **(a)** 1. Explain the typical signal flow during inter-BSC(Base station controller), intra –MSC(Mobile services switching center) handover. **03**

2. Explain the following : **03**
   (i) Delivery traffic indication map (ii) sniff state of a Bluetooth device

(b) 1. Explain Basic distributed foundation wireless medium access control – distributed coordination function using CSMA/CA(carrier sense multiple access with collision avoidance) **03**

2. Explain the agent advertisement method of mobile IP. **03**

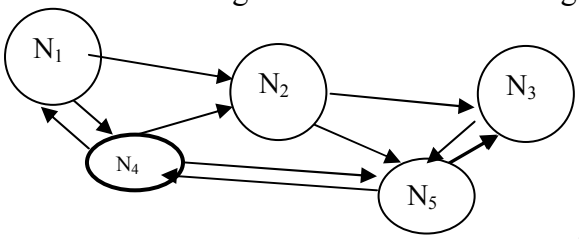
Q-5 **(a)** 1. For what purpose and where following messages are generated? **03**

(i) Binding request

(ii) Message too big

2. Explain logical model of wireless application environment(WAE). **03**

(b) 1. Which two things are added by Destination sequence distance vector (DSDV) to the distance vector algorithm? Write the routing table for N_1. **03**



2. Explain the change of the foreign agent with an optimized mobile IP. **03**

OR

Q-5 **(a)** 1. Explain Logical link control and adaptation protocol of Bluetooth. **03**

2. What is the purpose of registration? Explain two different ways of registration depending on the location of CA. **03**

(b) 1. What are the disadvantages of small cells in cellular system? Define two possible models to create cell patterns with minimum interference. **03**

2. Explain Demand assignment multiple access with implicit reservation in Time Division Multiplexing. **03**

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