Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER • 2014

Subject code: 3715303 Date: 09-01-2015

Subject Name: Wireless Communication and Mobile Computing

Time: 02:30 pm - 05:00 pm Total Marks: 70

Instructions:

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

Q. No. 1

a. Explain how hidden node & exposed node problem can be solved by using RTS/CTS. [7 Marks]
b. Describe the provisions for power saving in Wireless LAN. [7 Marks]

Q. No. 2

a. Explain QoS support extended by IEEE 802.11e EDCA. [7 Marks]
b. Describe multi-slot packet transmission in Bluetooth with diagram. [7 Marks]

OR

b. Bluetooth offers Asynchronous Connectionless (ACL) links, which asymmetric in nature. Do you agree on this? How Bluetooth offers asymmetric data rate in either direction. [7 Marks]

Q. No. 3

a. Explain in detail about Piconet and Scatternet formation in Bluetooth. [7 Marks]
b. What are the different types/levels of mobility? Explain different solutions available to tackle those mobility issues. [7 Marks]

OR

Q. No. 3

a. Which parameters affect the cellular network design? Explain the process of expanding the cellular network capacity. [7 Marks]
b. Explain IEEE802.11 frame structure. [3 Marks]
c. How power saving is achieved by IEEE 802.11 standard? [4 Marks]

Q. No. 4

a. Explain how packets intended for mobile host is intercepted by Home Agent in Mobile IP. Also discuss Proxy ARP. How Gratuitous ARP works? [7 Marks]
b. In the IEEE 802.11 standard, explain the purpose of the SIFS, PIFS, and DIFS intervals. Use a diagram to show the relationship among the intervals. [7 Marks]

OR

Q. No. 4

a. Compare performance of conventional TCP with any of the TCP version proposed for wireless Network. [7 Marks]
b. Explain how WLAN supports differential handling of frames in IEEE802.11e [7 Marks]

Q. No. 5

a. In the Distributed Coordination Function DCF protocol of IEEE 802.11, why does a Node wait only SIFS time units (after the last data packet reception) before sending an ACK, while waiting DIFS time units before attempting a data transmission? [7 Marks]
b. Draw IEEE 802.11 MAC state transition diagram & explain. [7 Marks]

OR

Q. No. 5

a. Explain timing synchronization function in Infrastructure mode of Wireless LAN. [7 Marks]
b. Study the effect of changing beacon interval on control packet overhead and throughput. Simulate in ns2. [7 Marks]