Seat No.: _

Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER - I • EXAMINATION - WINTER 2012

Subject code: 715303

Date: 10-01-2013

Subject Name: Wireless Networks and Mobile Computing **Total Marks: 70**

Time: 02.30 pm – 05.00 pm

Instructions:

- 1. Attempt question 1, which is compulsory and answer any five from the rest of the questions.
- 2. Make suitable assumptions wherever necessary.
- **3.** Figures to the right indicate full marks.

Q. No. 1

- a. List two modes of operation of Wireless LAN.
- b. What is a Basic Service Set (BSS)?
- c. Show protocol architecture of WLAN.
- d. Explain function of Clear Channel Assessment (CCA) signal.
- e. Explain working of frequency hopping spread spectrum.
- f. Why collision detection is not possible in Wireless LAN?
- g. What is superframe?
- h. Why physical carrier sensing in wireless networks is not enough?
- i. Why OFDM is more resilient to errors compared to FDM?
- j. How does virtual sensing work?

O. No. 2

- a. What are the advantages of suspending backoff timer when one of the node starts transmission?
 - [5 Marks]

[2 Marks X 10 = 20 Marks]

b. Why Ethernet does not acknowledgement and why the same is needed in Wireless LANs? [5 Marks]

Q. No. 3

a. Explain how hidden node and exposed node problem can be solved by using RTS/CTS.

[5 Marks]

b. Explain mechanism for transmitting large IP packet through wireless LAN.

[5 Marks]

[5Marks]

Q. No. 4 a. Explain Tunneling in Mobile IP. [5 Marks] b. Explain multi-slot packet transmission in bluetooth with diagram. [5 Marks]

Q. No. 5

- a. Bluetooth offers Asynchronous Connectionless (ACL) links which asymmetric in nature. Show how Bluetooth offers asymmetric data rate in either direction. [6 Marks]
- b. Bluetooth controls power consumption by switching between the states. Show these states with state transition diagram. [4 Marks]

Q. No. 6

- a. Draw IEEE 802.11 MAC state transition diagram.
- b. Discuss various effects due to which radio signal quality deteriorates as it travels through air. [5Marks]

O. No. 7

Explain how packets intended for mobile host is intercepted by Home Agent in Mobile IP. Explain Proxy ARP. How Gratuitous ARP works? [10 Marks]

Q. No. 8

Explain formation of Pic	conet and Scatternet in Bluetooth.	[10 Marks]
