Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Sem-I Regular Examination January / February 2011

Subject code: 712304N

Subject Name: Ubiquitous Computing

Date: 03 /02 /2011 **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.1 Answer the following Questions.

1. Why to construct a sectorized antenna ? **01**
2. What is free space loss? **01**
3. What is the significance of Training bits and 'S' bit in GSM time slot ? **01**
4. What is HO_MARGIN ? **01**
5. What is the work of GPRS tunneling protocols ? **01**
6. What is the work of a Beacon ? **01**
7. What is the difference between Detection range & Interference range ? **02**
8. What is Cell Clusters ? **02**
9. Give IEEE 802.11 PHY frame format using DSSS. **02**
10. Give types of Inter Frame Spacing in MAC layer. **02**

Q.2 **(a)** Answer the following Questions.

1. Explain types of Handover in GSM Networks. **03**
2. List advantages and disadvantages of WLAN. **02**
3. What is Dynamic Source Routing ? **02**

(b) Describe GSM System Architecture with the functionalities provided by each of its subsystems. **07**

OR

(b) Explain Snooping TCP with its advantages and disadvantages. **07**

Q.3 **(a)** Explain Tunneling - Detunneling and types of Encapsulation in Mobile IP. **07**

(b) Explain WAP 2.0 architecture with its protocol framework. **07**

OR

Q.3 **(a)** What is Spread Spectrum technology ? Explain DSSS and FHSS in detail with suitable examples. **07**

(b) Draw Bluetooth protocol stack architecture. Explain LMP and L2CAP in detail. **07**

Q.4 **(a)** How Routing takes place in Ad-hoc Network ? Explain the routing difference between Wired network and Ad-hoc wireless network . **07**

(b) Why Wireless Application Environment is needed ? Give its logical structures and components details. **07**

OR

Q.4 **(a)** What is Autocorrelation codes ? Explain Barker code with a suitable example. **07**

(b) Explain DECT System and its protocol architecture in detail. **07**

Q.5 **(a)** Answer the following Questions.

1. Explain subscriber authentication process in GSM Network. **04**
2. Describe the different Number (Addresses) needed to locate MS in GSM network ? **03**

(b) Explain 802.11 MAC data frame with frame control fields. **07**

OR

Q.5 **(a)** Answer the following Questions.

1. Explain Agent Discovery in Mobile IP. **05**
2. Give merits & demerits of TDM + FDM. **02**

(b) Answer the following Questions.

1. What is the basic purpose of DHCP ? Name DHCP entities. **04**
2. Write a note on HAWAII. **03**

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