**B.E. / B.Tech ( Full Time ) DEGREE END SEMESTER EXAMINATIONS, April / May 2013**

### B.TECH INFORMATION TECHNOLOGY

### VIII Semester

### IT9039 & WIRELESS COMMUNICATIONS

(Regulation 2008)

Time : 3 Hours          Answer ALL Questions          Max. Marks 100

### PART-A (10 x 2 = 20 Marks)

1.  What is the major difference among 1G, 2G, 2.5G and 3G?

2.  What is a RAKE Receiver?

3.  What type of FEC is employed in UTRAN?

4.  Define Auto-Correlation and Cross-Correlation.

5.  What are the Interfaces that exist within UTRAN?

6.  What is Gateway Location Register?

7.  Give some examples of 3G Applications.

8.  What is Jitter? What is its significance in streaming services?

9.  What is WiMAX? Give its functionalities.

10. What are the predominant technologies in 4G?

### Part – B ( 5 x 16 = 80 marks)

11. (i).    Differentiate hybrid TDMA/FDMA and WCDMA. **(4)**

    (ii).   Why Diversity is employed in digital transmission? What are different types of diversities used in UTRAN?    **(10)**

    (iii).  Draw the WCDMA Downlink closed-loop power control. **(2)**

12. (a).(i).  What is a Spread spectrum? What are different spreading techniques used in UMTS?    **(8)**

    (ii).   Briefly explain about Turbo Codes in UTRAN. **(8)**

### OR

    (b).(i).  Discuss about Access Stratum protocols of WCDMA Air interface. **(8)**

    (ii).   Write short notes on Packet Data Convergence protocol. **(8)**

13. (a).(i). Compare the UTRAN with GSM Radio access network. **(8M)**

(ii). Explain briefly about **Iu** Interface of UMTS. **(8M)**

**OR**

(b).(i). Discuss about the Control-Plane protocol stack for communication among UE-NodeB-RNC-MSC. **(8)**

(ii). Discuss about Location Services(LCS) methods of UMTS. **(8)**

14. (a).(i). Briefly explain about various services provided by UMTS. **(8)**

(ii). What are various QOS Classes of UMTS? **(8)**

**OR**

(b).(i). Write short notes on RTP and RTCP protocols. **(8)**

(ii). Draw the Layered IMS Architecture. **(6)**

(iii). What is Media Gateway function? **(2)**

15. (a).(i). Explain briefly about WLL Architecture. **(8)**

(ii). What are various WLL Technologies? **(8)**

**OR**

(b) Write short notes on the following

(i). DVB-H **(6)**

(ii). LMDS **(6)**

(iii). Physical layer of WiMAX. **(4)**