Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject code: 712702N **Date: 09-01-2013**

Subject Name: 3G Mobile Communications

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	**(a)**	Write a short note on TSM protocol stack.	**07**
	(b)	What are the advantages of 3G compare to previous mobile technologies?	**07**
Q.2	**(a)**	Compare TDMA, FDMA and CDMA.	**07**
	(b)	Discuss the advantages and disadvantages of CDMA.	**07**
		OR	
	(b)	Explain Uplink and Downlink closed loop Power Control with block diagram.	**07**
Q.3	**(a)**	Explain the need of power controls in CDMA, and also explain uplink power weighting and combing for uplink.	**07**
	(b)	Explain Logical, Transport & Physical channel and its function in UTRAN.	**07**
		OR	
Q.3	**(a)**	Explain diversity and in detail.	**07**
	(b)	Write a Short note on Frequency-Hopping CDMA.	**07**
Q.4	**(a)**	Write a short note on Orthogonal codes.	**07**
	(b)	Explain PN codes in detail.	**07**
		OR	
Q.4	**(a)**	Explain convolution codes and convolutional 1/3 rate encoder.	**07**
Q.4	**(b)**	Explain Turbo encoder with block diagram.	**07**
Q.5	**(a)**	Explain UMTS network elements and interface with block diagram.	**07**
	(b)	What is the importance of network management?	**07**
		OR	
Q.5	**(a)**	Discuss Local Services (LCS) Architecture with block diagram.	**07**
	(b)	Discuss various Application Technologies in 3G.	**07**

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