Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER–IV • EXAMINATION– WINTER • 2015

Subject Code: 740401 **Date: 05/12/2015**

Subject Name: Wireless and Mobile Network Architecture

Time: 2:30 PM TO 5:00 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)**	What is handoff? Describe Inter-BS Handoff and Intersystem Handoff.	**07**
	(b)	Draw GSM architecture and explain functions and significance of each block.	**07**
Q.2	**(a)**	Consider a GSM system with a one way spectrum of 12.5 Mhz and channel spacing of 200 kHz. There are three control channels per cell, and the reuse factor is 4. Assuming an omni-directional antenna with six interferes in the first tier and a slope for path loss of 40 dB/decade (γ=4), Calculate the number of calls per cell site per hour and mean S/I ratio with 2% blocking during system busy hour and an average call holding time is 120 seconds. Using Erlang B table for 122 channels and given blocking, traffic load is 110 Erlangs.	**07**
	(b)	Why hexagonal cell geometry is used in cellular system? Prove that for a hexagonal geometry, the co-channel reuse ratio is given by $q = (3N)^{1/2}$, Where $N = i^2 + ij + j^2$.	**07**
		OR	
	(b)	Explain MS registration process and call delivery procedure under roaming Management.	**07**
Q.3	**(a)**	Enlist the issues related to handoff management. And explain in brief the mobile controlled handoff.	**07**
	(b)	Compare soft handoff with hard handoff.	**07**
		OR	
Q.3	**(a)**	Write a brief note on signaling system No. 7.	**07**
	(b)	Explain IS-41 authentication and compare sharing scheme and without sharing scheme.	**07**
Q.4	**(a)**	Describe in brief PACS registration process and call origination process.	**07**
	(b)	Draw the CDPD reference model and explain roaming management.	**07**
		OR	
Q.4	**(a)**	Write a brief note on GSM operation and maintenance.	**07**
	(b)	Explain about Location tracking and call setup procedure in GSM.	**07**
Q.5	**(a)**	What is the significance of WAP specifications? Briefly explain WAP protocol Stack.	**07**
	(b)	Compare W-CDMA and CDMA2000 and explain quality of service in 3G.	**07**
		OR	
Q.5	**(a)**	What are the advantages of Wireless Local Loop over wire line networks? Describe the functions of various entities of WLL Architecture.	**07**
	(b)	Discuss the operation of Mobile IP and Define (a) Mobile Node (b) Home Agent (c) Foreign Agent.	**07**

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