Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY M. E. - SEMESTER - I • EXAMINATION - WINTER • 2014

Subject code: 2714401 Date: 07-01-2015 **Subject Name: Wireless Communication Theory** 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) If SIR of 15dB is required for satisfactory forward channel performance of a 07 cellular system, what is the frequency reuse factor and cluster size that should be used for maximum capacity if the pathloss exponent is (a) n=4 (b) n=3? Assume that there are six co channel cells in the first tier and all of them are at same distance from the mobile. Explain all the subsystems of GSM architecture. 07 **(b) Q.2** Explain briefly: (1) Soft handoff (2) Dwell time (3) RSSI (4) Adjacent **07** (a) channel Interference (5) Cell dragging (6) MAHO (7) WLL Explain channel assignment strategies in detail. 07 **(b)** Explain co-channel interference and derive the equation of Signal to **07** (b) Interference Ratio (SIR) for hexagonal geometry with N=7. Q.3Define control channel. Give its classification in GSM and explain each of **07** (a) Define multiple access technique. Compare TDMA, FDMA and CDMA. 07 (b) Q.3 Draw frame format for a normal burst in GSM. Explain burst, frame, **07** (a) multiframe, hyperframe, superframe. Compare GSM technique with CDMA technique for mobile communication. **07 (b)** 07 **Q.4** Explain UMTS in detail. (a) What is meant by LMDS and MMDS? Explain any one with block diagram. **(b) 07** Explain CDMA 2000 Cellular Technology **Q.4** (a) 07 Explain GPRS Technology **07** (b) **Q.5** Explain Mobility Management in moibile Adhoc network. 07 (a) Explain security aspects in Wireless Networks **(b)** 07 **Q.5** Explain IEEE 802.11 WLAN Technology. **07** (a) Explain IEEE 802.15 WPAN Technology. 07 (b)
