Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY ME-SEMESTER II—EXAMINATION—SUMMER 2015

Subject Code: 2724407 Date: 01/06/2015 **Subject Name: VLSI in wireless Communication system** Time: 2:30 PM – 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) For noisy two port networks of K- stages, each with noise derive equation for 07 Noise figure **(b)** Draw heterodyne architecture of RF receiver and also explain the functions of 07 Band selection filter, Image rejection filter and channel filter 0.2 (a) Explain the multipath fading in details 07 (b) Explain the operations of BPSK modulator and demodulator with block 07 diagrams. OR **(b)** Explain the operations of QPSK modulator and demodulator with block 07 diagrams. Write short note on types of circuit noise and also mention the effect of these 0.3 07 noise on over all wireless communication channel. (b) Draw the core amplifier of wideband LNA and explain functioning 07 OR Q.3(a) Discuss for receiver design, the effects of non idealities into the corresponding 07 design parameters. (b) Draw the circuit employed to match the load with signal source in an LNA and 07 derive the expression for Zin and comment on it. **Q.4** (a) Explain additive white Gaussian noise and explain effect of this noise 07 on wireless channel **(b)** Draw generalized LNA topology and its equivalent lumped parameters of an **07** amplifier and explain its working

Q.4	(a)	Compare wide band LNA and Narrow band LNA	07
	(b)	Draw the circuit diagram of Gilbert mixer and describe the operation of this mixer in detail.	07
Q.5	(a)	Explain with circuit diagram PLL based frequency synthesizer.	07
	(b)	Mention in detail : Design steps of Sigma Delta Modulator	07
		OR	
Q.5	(a)	Describe the operation of Ring oscillator using circuit diagram	07
	(b)	Draw input bias scheme for Wideband LNA & explain in detail.	07
