Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER II (NEW) – • EXAMINATION – SUMMER 2016

Subject Code: 2724407 **Date: 31/05/2016**

Subject Name: VLSI in Wireless Communication systems

Time:10:30 am to 01:00 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)**	Explain the operations of QPSK modulator and demodulator with block diagrams.	**07**
	(b)	For noisy two port networks of K- stages, each with noise derive equation for Noise figure.	**07**
Q.2	**(a)**	Draw heterodyne architecture of RF receiver and also explain the functions of Band selection filter, Image rejection filter and channel filter.	**07**
	(b)	Explain the operations of BPSK modulator and demodulator with block diagrams.	**07**
		OR	
	(b)	Write short note on types of circuit noise.	**07**
Q.3	**(a)**	What is frequency synthesizer? Explain PLL based frequency synthesizer.	**07**
	(b)	Explain the multipath fading in details	**07**
		OR	
Q.3	**(a)**	Describe CMOS based XOR- Phase detector in detail	**07**
	(b)	Discuss for receiver design, the effects of non idealities into the corresponding design parameters	**07**
Q.4	**(a)**	Explain with neat diagram CMOS based ring Oscillator	**07**
	(b)	Describe the operation of Gillbert mixer in detail along with neat diagram.	**07**
		OR	
Q.4	**(a)**	Make comparisons between Wide band and Narrow band LNA.	**07**
	(b)	Describe the operation of charge pump in detail.	**07**

Q.5	**(a)**	Mention the design steps for CMOS sigma delta ADC	**07**
	(b)	Explain the operations of FSK modulator and demodulator with block diagrams.	**07**

OR

Q.5	**(a)**	Define the term “channel “ for communication and describe AWGN in channel	**07**
	(b)	Describe the function of CMOS based Sample and Hold circuit in ADC	**07**

****