Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – WINTER • 2014

Subject code: 1724205 Date: 05-12-2014

Subject Name: Analog and Mixed Signal VLSI Design

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)**	Discuss the different issues related to Analog VLSI CMOS Technology.	**07**
	(b)	Explain the working of basic PLL with necessary figures and waveforms.	**07**
Q.2	**(a)**	Calculate the voltage gain and -3dB frequency of Active nMOS load inverter by using small signal diagram.	**07**
	(b)	Describe the Short Channel Effects with respect to MOS.	**07**
		OR	
	(b)	Describe the Basic MOS Models	**07**
Q.3	**(a)**	Explain the various second order effect related to MOSFET.	**07**
	(b)	What is miller effect? Explain in detail for analog VLSI circuit.	**07**
		OR	
Q.3	**(a)**	Describe the characterizing of comparator.	**07**
	(b)	With suitable figures and equations explain the working of analog multiplier.	**07**
Q.4	**(a)**	Explain Following Terms for analog to digital converter. I. Missing Codes. II. Offset and Gain Errors. III. INL. IV. DNL.	**07**
	(b)	Draw the Current Steering DAC and explain its working.	**07**
		OR	
Q.4	**(a)**	List down the various performance parameters of OPAMP? Discus any three in detail.	**07**
	(b)	Draw and explain the Differential amplifier with current source load	**07**
Q.5	**(a)**	Draw the Pipelined ADC and explain its working.	**07**
	(b)	What is Noise? Explain the Noise Spectrum for analog VLSI circuit.	**07**
		OR	
Q.5	**(a)**	With suitable figures and equations explain the working of basic configuration of an OTA.	**07**
	(b)	Describe the closed loop sample and hold circuit.	**07**

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