Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – WINTER 2012

Subject code: 1722602 **Date: 31-12-2012**

Subject Name: CMOS Circuit Design-II

Time: 10.30 am – 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)**	Discuss Low-noise op-amps using MOSFETs.	**07**
	(b)	Discuss Analog Multiplier.	**07**
Q.2	**(a)**	Discuss the Channel charge injection and clock feedthrough in MOSFET during switching operation.	**07**
	(b)	Explain the preamplification stage of comparator circuit.	**07**
		OR	
	(b)	How would you increase the gain bandwidth product of the conventional op-amp? Explain your approach in detail.	**07**
Q.3	**(a)**	Explain Switched capacitor integrator.	**07**
	(b)	Explain PTAT current generation.	**07**
		OR	
Q.3	**(a)**	Discuss any two application of PLL.	**07**
	(b)	Explain supply independent biasing.	**07**
Q.4	**(a)**	What are the different issues to be considered in design of sense amplifier? Draw basic sense amplifier circuit and discuss its working.	**07**
	(b)	Discuss buffered opamps using MOSFETs.	**07**
		OR	
Q.4	**(a)**	Explain the mechanism of erasing and writing data into flash memory. Draw circuit diagram for a 4-bit NAND flash memory cell and provide the table indicating levels of input signals for erase, program, and read operations.	**07**
	(b)	Explain the working of basic charge pump PLL.	**07**
Q.5	**(a)**	Classify ADC and discuss Successive Approximation ADC in brief.	**07**
	(b)	Discuss Applications of the Schmitt Trigger.	**07**
		OR	
Q.5	**(a)**	Classify DAC and discuss current scaling DACs.	**07**
	(b)	Explain all Multivibrator circuits.	**07**

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