

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**
