

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2013****Subject code: 725203****Date: 03-06-2013****Subject Name: Analog and Mixed Signal IC Design****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) List MOSFET second order effects and discuss any one in detail. **07**
(b) Draw the CS (Common Source) stage with diode connected load and small signal equivalent circuit of it. Derive voltage gain for the same. **07**
- Q.2** (a) Draw the Common Drain stage and small signal equivalent circuit of it. Derive voltage gain for the same. **07**
(b) List different specifications of data converter and explain any three in brief. **07**
- OR**
- (b) Discuss performance parameters of Operational amplifier. **07**
- Q.3** (a) Draw and explain Gilbert cell. **07**
(b) Draw the circuit diagram of a single stage operational amplifier and explain the operation. **07**
- OR**
- Q.3** (a) Explain Thermal Noise and Flicker noise. **07**
(b) Discuss simple current mirror circuit and find current gain and output impedance. **07**
- Q.4** (a) Discuss characteristics of PLL and charge pump PLL. **07**
(b) Draw and explain current steering DAC. **07**
- OR**
- Q.4** (a) Discuss different building blocks that are required for constructing switch capacitor circuits. **07**
(b) Discuss temperature independent references in brief. **07**
- Q.5** (a) Discuss stability and also explain one-pole, two poles and Three poles system. **07**
(b) Explain Op-amp gain boosting. **07**
- OR**
- Q.5** (a) Draw high frequency equivalent circuit of Source Follower and derive input and output impedance. **07**
(b) List all the feedback topologies and discuss any two in detail **07**
