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Code No: A5505
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech. I Semester Examinations, April 2011
ANALOG & DIGITAL IC DESIGN
(EMBEDDED SYSTEMS)

Time: 3 hours   **Max. Marks.60**

Answer any Five Questions
All questions carry equal marks
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1. a) Explain in detail different types of noise in OPAMPS.
   b) Derive the equation for the upper limit on the unity gain frequency of a cascade
      gain stage amplifier.   [12]

2. a) Derive the equation for the transfer function of a common source amplifier in the
      high frequency analysis.
   b) Explain about noise bandwidth in OPAMPS.   [12]

3. a) Explain working of Basic Charge-Pump PLL with neat diagrams.
   b) Derive the equation for frequency of oscillation in a switched-capacitor relaxation
      oscillator.   [12]

4. a) What is a signal Flow Graph? Draw and explain the signal flow graph of a three
      input switched capacitor integrator.
   b) Explain the two methods for realizing the peak detectors.   [12]

5. a) Write the structural model VHDL code for an 8-bit counter using D-Flip Flop as
      component.
   b) Compare the logic families with respect to speed, propagation delay, Noise margin,
      Fan in, Fan out and power dissipation.   [12]

6. a) Explain all the advanced features of the Xilinx 4000 Series FPGAS.
   b) Explain in detail about the internal structure of ROM with neat diagrams.   [12]

7. a) Explain about the R-2R based converters with necessary equations and diagrams.
   b) Explain Successive Approximation A/D converter with a neat circuit diagram. [12]

8. Write short notes on any **TWO**
    a) Wilson wider current mirror
    b) Voltage controlled Oscillator
    c) Barrel shifter   [12]

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