Set No. 1

III B.Tech I Semester Regular Examinations, November 2007
LINEAR IC APPLICATIONS
(Electronics & Communication Engineering)

Time: 3 hours
Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Explain the use of constant bias circuit in operation of differential amplifier.
   (b) Analyze the dual input balanced output configuration of differential amplifier using DC. [8+8]

2. (a) Explain how the input offset voltage compensated for?
   (b) How fast can the output of an op - amp change by 10V, if its slew rate is 1 V/μs.
   (c) Define thermal drift & slew rate. [6+4+6]

3. (a) Design a differentiator to differentiate an input signal that varies in frequency from 10 Hz to about 1KHz. If a sine wave of 1V peak at 1000 Hz is applied to this differentiator draw the output waveforms.
   (b) Why active differentiator circuits are not used in analog computer to solve differential equations. [10+6]

4. (a) Explain, How to obtain triangular wave using a square wave generator.
   (b) With the help of a neat circuit diagram explain the working of a logarithmic amplifier. [8+8]

5. (a) Define Bessel, Butterworth and Chebysher filters, and compare their frequency response.
   (b) Sketch the circuit diagram of band elimination filter and design a wide band-reject having f$_H$=200Hz and f$_L$=1KHz. Assume necessary data. [8+8]

6. Explain an application in which the 555 timer can be used as Astable multivibrator. [16]

7. (a) Compare R - 2R and weight resistor types of DACs.
   (b) Write short notes on A/D converters.
   (c) Define the following terms as related to DAC:
      i. Linearity
      ii. Resolution. [8+4+4]

8. What are all basic blocks of analog multiplexer? Explain how the data selections process is performed it. [16]

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