

Code No: R5310403

III B.Tech I Semester(R05) Supplementary Examinations, December 2009

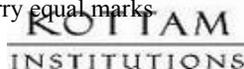
LINEAR IC APPLICATIONS

(Electronics & Communication Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks



KOTTAM
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1. (a) An op-amp has a slew rate of $2V/\mu s$. What is the maximum frequency of an output sinusoid of peak value 5V at which the distortion sets in due to the slew rate limitation.
(b) If the sinusoid of 10V peak is specified, what is the full power band width? [8+8]
2. (a) Draw the circuit of a typical instrumentation amplifier. Why do we use two stage op-amp circuit as an instrumentation amplifier. Explain
(b) List out the advantages of instrumentation amplifier. [10+6]
3. (a) Draw the block diagram of IC723 voltage regulator and explain its function.
(b) Design a regulated supply for the following specifications. $V_{load} = 5V$ to $15V$, $I_{load} = 0mA$ to $500mA$, $V_{regulated} = 22V$. [8+8]
4. (a) Show that an inverting op amp integrator with a resistance in Parallel with the capacitor behaves as a low pass filter.
(b) Design the band pass filter with $f_1 = 10Hz$ and $f_2 = 10KHz$ and a gain of 20dB in the pass band. [8+8]
5. (a) Define the conditions on the feedback circuit of an amplifier to convert it in to an oscillator.
(b) Design an RC phase shift oscillator for 300HZ frequency using IC $\mu A 741$ and ± 15 Volt power supplies. Assume necessary component values.
(c) Suggest a method to reduce the output voltage swing to ± 6.5 Volts. [6+6+4]
6. (a) Describe the 555 time monostable multivibrator applications in
 - i. pulse stretching
 - ii. Frequency
 - iii. Pulse Width Modulation
 (b) Describe Pulse Position Modulation (PPM) using 555 timer astable multivibrator. [12+4]
7. Write shorts on
 - (a) Performance specifications of a Digital to Analog Converter.
 - (b) Internal block diagram of a PLL IC (NE565). [8+8]
8. Write short notes on
 - (a) Noise rejection in dual slope type Analog to Digital converter.
 - (b) Operation of Flash type Analog to Digital converter. [8+8]