Code :R7310403

R7

III B.Tech I Semester(R07) Supplementary Examinations, May 2011
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) Draw the schematic of emitter coupled differential amplifier, explain the operation.

   (b) What is level translator? What is the necessity of level translator stage in cascading of differential amplifiers.

2. (a) List out the AC characteristics of an op-amp and discuss about them.

   (b) Draw the pin diagram and schematic symbol of a typical op - amp IC 741 and explain the function of each pin.

3. (a) Design a subtractor circuit whose output is equal to the difference between the two inputs. Use a basic differential Op-Amp configuration.

   (b) Derive the equation for frequency at which the gain is 0 dB for an Op-amp based integrator.

4. (a) Design a logarithmic amplifier for positive input voltages in the range 5mV to 50V.

   (b) Describe the principle of operation of precision half wave rectifier with waveforms.

5. (a) List the conditions for oscillation in all the three types of oscillators, namely, RC phase shift, Wien - bridge and quadrature oscillators.

   (b) Design an op - amp based relaxation oscillator and derive the frequency of Oscillation.

6. Discuss, with relevant circuits and waveforms, the working of Monostable multivibrator using 555 timers.

7. (a) Draw the schematic circuit diagram of a Servo A/D converter and explain the operations of this system.

   (b) Compare Servo A/D with other types of A/D converters.

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

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