Roll No. _____

BT-5/D06

LINEAR IC APPLICATIONS

PAPER - ECE-307E

Opt. (ii)

Time : 3 Hrs.   Maximum Marks : 100

Note : Attempt any five questions. All questions carry equal marks.

1. a. What is the difference between Constant Current Bias and Current Mirror ? Describe a current mirror source. When are such circuits employed ?   10

   b. Give the characteristics of an ideal operational amplifier. What is a practical OPAMP ? Give its equivalent circuit.   10

2. a. Why are FET OPAMP's better than BJT OPAMP'S? 5

   b. What is Cross over distortion & how is it eliminated ? 5

   c. Explain the following OPAMP parameters :

      (i) Input Bias Current

      (ii) Output Offset voltage

      (iii) Supply Voltage Rejection Ratio

      (iv) CMRR

      (v) Slew Rate   10

3. a. Discuss the frequency response of Operational Amplifer. What causes the gain of OPAMP to roll-off after certain frequency ?   10

   b. What is the need of frequency Compensation ? Describe the internal Compensation Technique.   10

(5th sem. Electronics)   52

4. a. How does negative feedback affect the performance of an inverting amplifier and in what way is the voltage follower a special case of a non-inverting amplifier ?10

   b. Describe the circuit of voltage of current converter, if the load is (i) floating and (ii) grounded. Is there any information on the size of the load when grounded ?10

5. a. What is the Instrumentation Amplifier ? Draw a system whose gain is controlled by an adjustable resistance.   12

   b. Name the circuit that is used to detect the peak value of non-sinusoidal waveforms. Explain its operation.   8

6. a. Explain why integrators are preferred over differentators in Analog Computer.   10

   b. Discuss an application of operational amplifier in open loop configuration.   10

7. a. Design a phase shift oscillator with Fo = 1 KHz.   8

   b. Describe the operation of monostable multivibrator using the functional diagram of 555 timer.   12

8.   Write short notes on the following :

   a. IC - 741

   b. Level Translator Circuit

   c. PLL   6, 7, 7

(5th sem. Electronics)   53