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Roll No. 274059

5th Dec 61

Total No. of Pages : 2

**BT-5/D06**

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**Linear I.C. Applications**

**Paper : ECE-307 E**

Time : Three Hours]

[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 and how is it eliminated ? 5
- (c) Explain the following OPAMP parameters : (a) IC (b) Level Translator (c) P.T.  
(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 Amplifier. 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
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

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- (b) Describe the circuit of voltage to 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 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 differentiators in Analog Computer. 10
- (b) Discuss an application of operational amplifier in open loop configuration. 10
7. (a) Design a phase shift oscillator with  $f_o = 1 \text{ KHz}$ . 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

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