

Name :

Reg. No:

**FOURTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2014
(09 Scheme)**

AI 09 403 – LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

Time : Three Hours

Maximum : 70 Marks

PART – A

1. Define Gain and Bandwidth.
2. State the advantage of BiCMOS technology.
3. Define Slew Rate.
4. What are the different stages in an Operational Amplifier ?
5. State Barkhausen Criteria for oscillations.

(5x2=10)

PART - B

Answer any four questions

6. Explain the steps in Monolithic IC technology.
7. Compare CMOS and BJT technology with their features, advantages and disadvantages.
8. With neat sketch, explain any current mirror and its significance in operational amplifiers.
9. Explain the significance of positive and negative feedbacks.
10. With circuit schematic, explain operation of a inverting and non inverting amplifier and derive the expressions for their output.
11. Explain the working of a Wien Bridge Oscillator.

(4x5=20)

PART-C

12. Discuss the various methods used for fabricating IC resistors and compare their performance.
(Or)
13. Describe the six characteristics of an Ideal Operational Amplifier.
14. With schematic circuit diagram, explain the 741 operational amplifier circuit.
(Or)
15. Derive the frequency response of an operational amplifier.
16. Describe the operation of a op-amp differentiator. Design an op-amp differentiator that will differentiate an input signal with $f_{max} = 100$ Hz. Draw the output waveform for a sine wave of 1V peak at 100 Hz applied to the differentiator.
(Or)
17. Explain the operation of a op-amp comparator. For the non-inverting Schmitt comparator circuit, calculate the threshold levels V_{UT} and V_{LT} and the hysteresis V_H .
18. Design a fourth order Butterworth low-pass filter having upper cut-off frequency 1 kHz.
(Or)
19. Discuss the working of Astable Multivibrator with suitable circuit and waveforms.

(4 x 10 = 40 Marks)
