

Reg. No. _____

Karunya University

(Karunya Institute of Technology and Sciences)
(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

End Semester Examination – April/May 2010

Subject Title: LINEAR INTEGRATED CIRCUITS AND ITS APPLICATIONS

Time : 3 hours

Subject Code: EC211

Maximum Marks: 100

Answer ALL questions

PART – A (10 x 1 = 10 MARKS)

1. List any two processes involved in the Silicon wafer preparation.
2. What are the advantages of SiO₂ in planar process?
3. Mention the ideal characteristics of an op-amp.
4. Define CMRR.
5. What is the formula to calculate the pulse width of a monostable output using IC741?
6. Give the output voltages of IC78XX.
7. List any two applications of a timer in monostable mode.
8. In an active filter, the order of the filter is decided by the number of _____
9. Define capture range of a PLL.
10. What is the disadvantage of a binary weighted DAC?

PART – B (5 x 3 = 15 MARKS)

11. Describe the process of photo etching used in the fabrication of ICs.
12. Draw the circuit of an inverting amplifier and give the expression for gain.
13. Name the oscillator which involves both positive and negative feedback. Draw the circuit of the same.
14. Classify active filters based on the range of frequency passed and draw the ideal characteristics.
15. Classify the different types of ADCs.

PART – C (5 x 15 = 75 MARKS)

16. Mention the steps involved in the fabrication of IC using planar process and discuss any three processes in detail.

(OR)

17. Discuss in detail about the fabrication of integrated resistors.
18. With a neat circuit, explain the following applications of an op-amp. Also determine the transfer function of each circuit.
 - a. Inverting amplifier
 - b. Inverting adder
 - c. Integrator

(OR)

19. Explain in detail about the external frequency compensation technique used in an op-amp.
20. With a neat circuit, explain the operation of an astable multivibrator using IC741. Derive the expression for f .

(OR)

[P.T.O]

21. Draw the functional diagram of IC723 regulator and explain how it can be used as a low voltage regulator.
22. With a neat circuit, explain the operation of second order active HPF. Derive the transfer function.
(OR)
23. Explain the operation of an IC555 timer in its astable mode and derive the value of T.
24. Draw the block diagram of a PLL and explain in detail about the phase detector section.
(OR)
25. a. Using a suitable circuit, discuss how a R-2R network converts a digital data into analog data.
b. Discuss the operation of a dual slope ADC with a neat circuit.