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 – November/December 2011

Subject Title: LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

Time: 3 hours

Subject Code: EC211 **Maximum Marks: 100**

Answer ALL questions

PART – A (10 x 1 = 10 MARKS)

1. Name any two methods for fabricating integrated resistors.
2. Name the methods used for obtaining integrated capacitors.
3. Give the pin configuration of 741.
4. Draw the circuit of scale changer.
5. Draw the characteristics of an ideal comparator and practical comparator.
6. Define load regulation.
7. What is the roll-off rate of a first order filter?
8. List the applications of astable multivibrator using IC555.
9. Which is greater 'Capture range' or 'Lock range'?
10. Which is the fastest ADC?

PART – B (5 x 3 = 15 MARKS)

11. List the advantages of Integrated Circuits over discrete component circuits.
12. List the characteristics of an ideal op-amp.
13. How is current boosting achieved in a 723 IC?
14. Write short notes on Switched Capacitor Filter.
15. Draw the block diagram of a PLL AM detector.

PART – C (5 x 15 = 75 MARKS)

16. a. Explain the fabrication of Bipolar Junction Transistor. (10)
    b. Explain Silicon wafer preparation in planar process. (5)

(OR)

17. a. Explain the fabrication of FET with necessary diagram. (10)
    b. Explain Isolation technique in planar process. (5)

18. List the non-ideal DC characteristics of an op-amp and explain.

(OR)

19. Draw the circuits of differentiator and integrator using op-amp and explain them.

20. Draw the circuit diagram of Triangular wave generator and explain its function.

(OR)

21. With necessary circuit diagram and waveform, explain the working principle of switching regulator.

[P.T.O]

22. a. Draw the schematic of the second order Low Pass Active Filter and explain the operation. (8)

    b. Draw the schematic of the Narrow Band Pass Active Filter and derive an expression for band width. (7)

(OR)

23. With necessary circuit diagram and waveform, explain the monostable operation using 555 timer. List its applications also.

24. a. Draw the basic block schematic of the PLL and explain. (9)

    b. Draw the block diagram of Frequency multiplier using PLL and explain. (6)

(OR)

25. Explain the Dual slope ADC with necessary diagrams.