Reg. No. _____

Karunya University

(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

End Semester Examination – November / December 2009

Subject Title: LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

Time : 3 hours

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

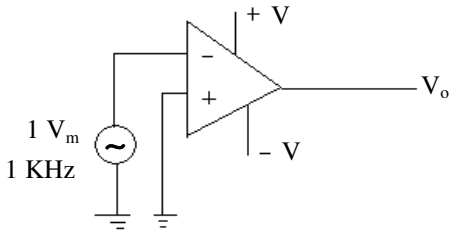
Answer ALL questions

PART – A (10 x 1 = 10 MARKS)

1. Name the isolation techniques used in planar process.
2. List any two methods used for depositing thin film.
3. What is the gain of an non-inverting amplifier where $R_F = 10K\Omega$ and $R_i = 5K\Omega$?
4. Draw the circuit diagram of a lossy integrator.
5. What is the other name for regeneration comparator?
6. Mention any one advantage of IC723 over IC7805.
7. What are the different modes in which an IC555 can be operated?
8. An active filter does not make use of an _____ for filtering.
9. Give the applications of a PLL.
10. Which is the ADC that is commonly used?

PART – B (5 x 3 = 15 MARKS)

11. Name the different steps involved in the preparation of an npn transistor using planar process.
12. What are the different frequency compensation techniques used in an op-amp?
13. Given a sinusoidal input of 1 V_m and 1 kHz, draw the output of the following circuit.



14. Discuss the operation of a Schmitt trigger using IC555.
15. Draw the block diagram of a PLL.

PART – C (5 x 15 = 75 MARKS)

16. Discuss in detail about MOSFET fabrication

(OR)

17. Discuss about the fabrication steps involved in fabrication of the different types of pnp transistor. Also compare npn and pnp IC transistor.

18. With a neat circuit diagram, determine the CMRR of a differential amplifier. Discuss any one method to improve the CMRR.

(OR)

19. Explain with a neat circuit, how an op-amp can be used to determine log and antilog of an input signal.

[P.T.O]

20. Explain in detail the working of an RC phase shift oscillator with a neat circuit.

(OR)

21. Discuss the operation of a SMPS with a neat circuit and relevant waveforms.

22. Realize a second order narrow band pass filter using op-amp and derive the transfer function.

(OR)

23. Explain the operation of IC555 timer in its monostable mode and find $t_{p.}$

24. Explain
    a. With a neat circuit, discuss the operation of a binary weighted DAC.
    b. Explain the operation of a successive approximation type ADC.

(OR)

25. With relevant block diagram, discuss any three applications of a PLL.