Karunya University

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End Semester Examination – May / June 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. How many gates are present in MSI IC?
2. Define epitaxial growth.
3. What is the purpose of internally compensated OP-AMP?
4. What is precision rectifier?
5. Draw the input and output waveform of a non-inverting comparator.
6. Write down the expression of f_o of a RC phase shift oscillator.
7. Draw the frequency response of an active low pass filter with pass band gain of 10.
8. What is the application of monostable multivibrator?
9. What is lock range of a PLL?
10. What is the need of ADC ?

PART – B (5 x 3 = 15 MARKS)

11. Explain CMOS technology.
12. Write short note on log amplifier using OP-AMP.
13. Draw IC Wein's bridge amplifier and what is its output frequency.
14. Design first order band pass filter having 3 KHz cut off frequency (Assume C and find R).
15. Describe PLL basic blocks of operation.

PART – C (5 x 15 = 75 MARKS)

16. a. Explain the steps involved in making an IC.   (10)
    b. Discuss on various packing methods adapted in IC packages.   (5)
                                    (OR)
17. a. Describe the method to fabricate a transistor in an IC.   (8)
    b. Explain the Vacuum evaporation and plating technique in depositing thin film.   (7)

18. a. Design a non inverting amplifier with OP-AMP with gain =10.
    b. Explain the design of integrator using IC.
                                    (OR)
19. a. Explain the operation of practical differentiator design in detail.   (10)
    b. Discuss on the analog computers.   (5)

20. Draw RC phase shift oscillator using IC and design it to operate at 10 kHz.
                                    (OR)
21. a. What are the properties of regenerative comparators?   (5)
    b. Explain the operation of op amp regulator.   (10)

22. What are the design concepts of a second order high pass filter and design a high pass filter to allow
    frequencies from 5 kHz.
                                    (OR)
23. Write short notes on multiplier ICs and active filter types.

24. Draw a neat sketch showing capture and lock range of a PLL IC and explain its operation.
                                    (OR)
25. Explain the characteristic features of ADC and DAC and give one example of ADC and DAC circuits.