**Reg. No. \_\_\_\_\_\_\_\_**

**Karunya University**

**(Karunya Institute of Technology and Sciences)**

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

**Supplementary Examination - June 2011**

**Subject Title: LINEAR INTEGRATED CIRCUITS AND APPLICATIONS Time: 3 hours**

**Subject Code: 09EC220 Maximum Marks: 100**

#### **Answer ALL questions**

**PART – A (10 x 1 = 10 MARKS)**

1. Large scale integration corresponds to

a. >3000 gates /chip b. 3 to 30 gates /chip c. 300 to 3000 gates /chip

d. 106 – 107 transistors /chip

2. It has not been possible to fabricate high Q inductors in monolithic ICs. (True/False)

3. A current mirror can be used as an active load, because it has \_\_\_\_\_\_\_\_\_.

4. \_\_\_\_\_\_\_\_\_ is used for testing photo devices.

5. A zero crossing detector is a comparator with

a. Vin =0 b. Vcc= 0 c. Vref=0

6. The main advantage of switched mode power supply is \_\_\_\_\_\_\_\_\_.

7. The nth order filter has \_\_\_\_\_\_\_\_\_roll off rate.

8. In Schmitt trigger, the frequency of the square wave (fs ) and frequency of the input signal (fin)  are related as

a. different b. fs > fin c. same d. fs < fin

9. The lock range of PLL is usually \_\_\_\_\_\_\_\_\_than the capture range.

10. The important converter characteristics are

a. resolution b. Linearity c. accuracy d. all the above.

**PART – B (5 x 3 = 15 MARKS)**

11. What is ion implantation?

12. Define common mode rejection ratio and Power supply rejection ratio.

13. What is hysteresis? What are the parameters determining hysteresis?

14. List the commonly used filters.

15. Define lock range and pull in time.

**PART – C (5 x 15 = 75 MARKS)**

16. With a neat diagram, explain the process of different types of transistor fabrication using monolithic IC technology.

(OR)

17. Explain the fabrication of FET and MOSFET using monolithic IC technology.

18. Draw OPAMP Log and antilog amplifier and explain its operation. Derive its output equation.

(OR)

19. List the DC characteristics of OPAMP and explain how they can be measured.

20. With a neat sketch, explain the working of OPAMP Schmitt trigger.

(OR)

[P.T.O]

21. Explain the working of switched mode power supply with a neat diagram.

22. Discuss the operation of Butterworth Narrow band pass filter.

(OR)

23. List the applications of timer in monostable mode and explain the operation of any two.

24. Draw the schematic of PLL and explain each block.

(OR)

25. With a neat circuit, explain the working of flash type A/D converter.