LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **PHYSICS**

FIFTH SEMESTER – **NOVEMBER 2013**

PH 5404 - ELECTRONICS - II

Date : 12/11/2013 Dept. No. Max. : 100 Marks

Time : 9:00 - 12:00

PART - A

Answer **ALL** questions (10 x 2 = 20)

1. What is the time period of a square wave generated in an astable multivibrator for which R=10kΩ, C= 0.01μF, R_1 = 20kΩ, R_2 = 10kΩ?
2. Write a short note on instrumentation amplifier.
3. What is meant by resolution and accuracy in a D/A converter?
4. Explain the terms quantization and encoding in a A/D converter?
5. What is meant by etching in IC terminology?
6. Give any four advantages of integrated circuits.
7. Why are the lines AD0-AD7 multiplexed in microprocessor 8085?
8. Explain the use of DAA instruction in microprocessor 8085.
9. Assume A register holds 79 and B register holds 68. After executing ADD B instruction, what will be the content of A register and the status of the flags in microprocessor 8085?
10. What is a subroutine?

PART - B

Answer any **FOUR** questions (4 x 7.5 = 30)

11. Explain with a neat diagram the working of an OP-AMP based monostable multivibrator.
12. With a neat diagram explain the working of a parallel comparator A/D converter.
13. Discuss the fabrication of capacitor.
14. Discuss the addressing modes in microprocessor 8085. Give two examples for each mode.
15. Write an assembly language program to multiply two 8 bit numbers with carry by indirect mode of addressing.

PART - C

Answer any **FOUR** questions (4 x 12.5 = 50)

16. (a) Draw and explain with a neat diagram the working of OP-AMP as a logarithmic amplifier (6)
    (b) Solve the following differential equation using operational amplifier. (6.5)
    $d^2y/dt^2 - dy/dt - 3y + 5 = 0$.
17. a) Explain the working of 4 bit binary weighted D/A converter with a neat diagram. (6.5)
    b) For a 4 bit binary weighted D/A convertor determine the following (i) output voltage when MSB is set. (ii) Output voltage for 1010 (iii) output voltage for 0110. Assume 0 = 0V and 1 = 5V. Given R_f=R=10kΩ (6)
18. Explain the fabrication of a bipolar transistor and explain how a bipolar transistor can be used as a diode.
19. Explain with examples data transfer instructions and arithmetic instructions.
20. Write an assembly language program to sort an array of 20 numbers in descending order by indirect mode of addressing.