



# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIFTH SEMESTER – NOVEMBER 2011

**PH 5404/5401 - ELECTRONICS - II**

Date : 08-11-2011  
Time : 9:00 - 12:00

Dept. No.

Max. : 100 Marks

## PART – A

Answer **ALL** the questions

(10 X 2 = 20)

1. Draw the output waveform of a differentiator for a square wave input.
2. Calculate the cut off frequency for a second order low pass filter given  $R_2 = 10 \text{ k}\Omega$ ,  $R_3 = 10 \text{ k}\Omega$ ,  $C_2 = 1 \text{ }\mu\text{F}$ ,  $C_3 = 1 \text{ }\mu\text{F}$ ,  $R_1 = 20 \text{ k}\Omega$  and  $R_f = 10 \text{ k}\Omega$ .
3. What is quantization in an A/D converter?
4. Give the output voltage expression for a 6 bit binary weighted D/A converter.
5. What is meant by encapsulation in IC terminology?
6. What is photolithography?
7. What is meant by multiplexed AD bus in 8085?
8. Explain the significance of auxiliary carry flag in 8085.
9. What is the function of HOLD and HLDA pins of 8085?
10. Explain RLC instruction with an example.

## PART – B

Answer any **FOUR** questions

(4 X 7.5 =30)

11. With a neat diagram explain the working of an instrumentation amplifier.
12. Discuss with a neat diagram A/D conversion based on voltage to frequency conversion.
13. What is an integrated circuit? What are its advantages and limitations? Explain the scale of integration of IC's.
14. Discuss in detail (a) data transfer instructions and (b) arithmetic instructions of 8085.
15. Write an assembly language program to determine the square root of an 8 bit number by immediate mode of addressing using  $\mu\text{P}$  8085.

## PART – C

Answer any **FOUR** questions

(4 X 12.5 =50)

16. Explain the working of an OP-AMP based astable multivibrator with a neat diagram.
17. a) What is a D/A converter? Discuss in detail the working of an OP-AMP based R-2R ladder D/A converter.  
b) Calculate the analog output for a 5 bit R-2R ladder D/A converter for the digital inputs (i)11100 and (ii) 01011 if  $R_f = 3.3R$ . Assume 0 = 0V and 1 = 5V.
18. Discuss in detail the classification of integrated circuits based on fabrication and structure.
19. Elaborate the architecture of 8085 with a neat diagram.
20. a) Write an assembly language program to pick the largest number in an array of 10 numbers.  
b) Write an assembly language program for 8085 to evaluate the expression  $x+2xy$  by immediate mode of addressing. Assume x, y and the answer are 8 bit numbers.

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