LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRD SEMESTER – **APRIL 2014**

PH 3106 - APPLIED ELECTRONICS

Date : 05/04/2014   Dept. No. [   ]   Max. : 100 Marks
Time : 09:00-12:00

PART A

Answer **ALL** the questions $(10 \times 2 = 20)$

1. What is Zener diode?

2. What is a depletion layer?

3. What is the output voltage of a summing amplifier when V1 = 2V, V2 = 1V, R1 = 10 kΩ , R2 = 10 kΩ , Rf = 10 kΩ.

4. State any four properties of an ideal Op-amp

5. Simplify using K-map F(A,B,C) = $(0, 2, 4, 6, 7)$

6. What is a half adder?

7. What is a flip flop?

8. What are shift registers? Name the types

9. Write the difference between main memory and auxiliary memory.

10. State two differences between RAM and ROM

PART – B

Answer any **FOUR** questions $(4 \times 7.5 = 30)$

11. Write short notes on (i) intrinsic semiconductor (ii) extrinsic semiconductors (iii) PN junction diode

12. Explain the working of a summing amplifier with a neat diagram

13. a) Define Multiplexer.

    b) Explain 4-1 multiplexer with logic circuit

14. With a neat diagram explain the working of a clocked RS flip-flop.

15. Name and explain the different types of registers in a computer.

PART – C

Answer any **FOUR** questions $(4 \times 12.5 = 50)$

16. Describe the operation of a NPN transistor in common emitter mode. Obtain the input and output characteristics for the same.

17. Explain with a neat diagram the working of a successive approximation A/D convertor

18. a) Simplify using K-map, F(A,B,C,D) = _ (3,4,6,7,11,12,13,14,15)   (8)

    b) Simplify Y = [AB (C + BD) + A B] C   (4.5)

19. a) Explain the shift right shift register with a neat diagram   (7.5)

    b) How can we convert a JK Flip flop into (i) D flip flop (ii) T-Flip flop? (5)

20. a) Explain the various components in memory hierarchy using block diagrams   (6.5)

b) Discuss in detail about Timing & control in a digital computer.   (6)