LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **COMPUTER SCIENCE**

THIRD SEMESTER – **NOVEMBER 2017**

PH 3106 – APPLIED ELECTRONICS

Date: 09-11-2017   Dept. No.   Max. : 100 Marks
Time: 09:00-12:00

PART A

ANSWER ALL QUESTIONS   **(10×2=20)**

1. What is zener diode?
2. Write two characteristics of an ideal operational amplifier?
3. What is doping in extrinsic semiconductor?
4. Simplify $\overline{A}$ (A+B) using Boolean identities.
5. What is a half subtractor?
6. Simplify using K-map = F(A,B,C) = (0,2,4,6,7).
7. What is virtual memory?
8. Draw the circuit diagram of a three bit ring counter.
9. List the various computer registers.
10. Draw the block diagram of 'D' flip flop using JK flip flop and give its truth table.

PART B

ANSWER ANY FOUR QUESTIONS   **(4×7.5=30)**

11. Explain the different types of semiconductor.
12. Explain the working of a summing amplifier with neat diagram.
13. What is a decoder? Explain 3-8 decoder with a neat diagram.
14. Explain the working of clocked RS flip-flop and give its truth table.
15. Draw the block diagram and explain the various components in memory hierarchy.

PART C

ANSWER ANY FOUR QUESTIONS   **(4×12.5=50)**

16. Explain the mechanism of current conduction in metals and hence derive the expression for the total current density.

17. Explain the working of an op-amp based 4 bit R-2R ladder D/A convertor with diagram.

18. (a)State and prove Demorgan's theorem. (6 marks)
    (b) Show how NAND gate is an universal gate. (6.5 marks)

19. (a)Explain the shift left shift register with a neat diagram. (6 marks)
    (b)Briefly explain the working of a D-flip flop with its truth table. (6.5 marks)

20. (a) Discuss in detail about timing and control in a digital computer. (7 marks)
    (b)Write short notes on RAM and ROM.

****

1