LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – COMPUTER SCIENCE

THIRDSEMESTER – APRIL 2018

PH 3106- APPLIED ELECTRONICS

Date: 05-05-2018   Dept. No.   Max. : 100 Marks

Time: 09:00-12:00

PART A

ANSWER ALL QUESTIONS   **(10×2=20)**

1. What is a semiconductor? Name the different types.

2. Draw the logic symbol of a T-flip flop and give its truth table.

3. Write any four characteristics of ideal operational amplifier.

4. What is multiplexer?

5. Define Fermi level.

6. State Demorgan's theorem.

7. Simplify using K map $Y = F(A,B) = \Sigma(2,3)$

8. Give the difference between RAM & ROM

9. Define catch memory.

10. Simplify $Y = \bar{B}\bar{C} + \bar{B}C$

PART B

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

11. Draw the block diagram and explain the memory hierarchy in a computer system.

12. Explain the working of a non-inverting amplifier with a neat diagram.

13. Discuss the working of a Johnson's counter with a neat diagram and give its truth table

14. Explain the working of a 4 input multiplexer. Give its logic circuit and truth table

15. Define α & β of a transistor and derive the relation between them.

16. Write short notes on 1) Solar cell and 2) Zener diode.

PART C

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

17. Describe the operation of a NPN transistor in common emitter mode. Discuss the input and output characteristics.

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

19. What is racing in JK flip flop? How it is solved in JK Master Slave flip flop?

20. (a) Explain the different types of registers in a computer

    (b) Explain with circuit the working of a D flip flop (6+6.5)

21. (a) Simplify using K – map $Y=F(A,B,C,D) = \Sigma(0,1,2,4,5,10,11,14,15)$

    (b) Explain NAND latch (8+4.5)

22. (a) Explain the working of a full adder and draw its truth table

    (b) Using NOR gate construct NOT and AND gate (8+ 4.5)

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