



# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

**SECOND SEMESTER – APRIL 2016**

**CS 2505 – COMPUTER ORGANIZATION & ARCHITECTURE**

Date: 23-04-2016

Dept. No.

Max. : 100 Marks

Time: 01:00-04:00

## SECTION-A

**ANSWER ALL THE QUESTIONS**

**(10 x 2 = 20)**

1. Define Logic Gate.
2. What are the two conditions under which the T flip flop change its state?
3. What is the advantage of designing a decoder using NAND gates? Write the truth table of decoder.
4. What is Enable input in decoders?
5. Differentiate and state the advantages of Hardwired Control and Micro Programmed Control.
6. Define Computer Instruction.
7. What are the outputs of the control logic circuit?
8. State the role of Program Counter in the basic computer.
9. What are three address instructions?
10. List the common fields found in instruction format.

## SECTION-B

**ANSWER ALL THE QUESTIONS**

**(5 x 8 = 40)**

- 11.a. Explain about the fundamentals of combinational circuits in detail.

(OR)

b. Simplify the Following.

i.  $F(X,Y,Z) = X'Y'Z + X'YZ + XY'Z + XYZ$

ii.  $F(A,B) = A'B + AB' + A'B'$

iii.  $F(x,y,z) = (x'+y)(x+z)(y+z)$

iv.  $F(x,y,z) = xyz + x'y + xyz'$

12. a. Define Register and explain about it in detail.

(OR)

b. Discuss on multiplexers with a neat diagram.

13. a. Discuss on control unit with a neat diagram.

(OR)

b. Discuss on various Computer Registers.

14. a. Explain about the register transfers during Interrupt cycle.

(OR)

b. Briefly explain the control inputs of the registers.

15. a. Briefly explain about various addressing modes.

(OR)

b. With a neat diagram explain the general register organization.

**SECTION-C**

**ANSWER ANY TWO QUESTIONS**

**(2 x 20 =40)**

16. a. Simplify the following.

i.  $F(x,y,z) = \sum (3,4,6,7)$

ii.  $F(x,y,z) = \sum (0,2,4,5,6)$

iii.  $F(A,B,C) = AC + AB + ABC + BC$

iv.  $F(W,X,Y,Z) = \sum(0,2,5,8,10,13).$

b. Explain about Shift registers in detail.

17. a. Write about the stored program organization with a neat diagram.

b. Explain about various memory reference instructions.

18. a. Explain different phases of instruction cycle.

b. Explain about various Data Manipulation Instructions.

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