



**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

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

**FIRSTSEMESTER – APRIL 2017**

**16UCS1MC02- COMPUTER ORGANIZATION AND ARCHITECTURE**

Date: 21-04-2017  
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

**SECTION A**

**ANSWER ALL THE QUESTIONS**

**10 X 2 = 20**

1. Write the DeMorgan's Theorems.
2. Simplify the following.  $C + (B'C)$
3. What is an encoder?
4. Define Shift Register.
5. What is an Instruction code?
6. State the need of the Common Bus in Computer Organization.
7. List down the different phases of Instruction Cycle.
8. What is indirect addressing?
9. What are the various status bit conditions?
10. List down the various Data Transfer Instructions.

**SECTION B**

**ANSWER ALL THE QUESTIONS**

**5 X 8 = 40**

11. a. Explain about the Full Adder with a neat diagram.  
(OR)  
b. Discuss on SR flip flop.
12. a. Explain the 3 to 8 line Decoder with a neat diagram.  
(OR)  
b. Discuss on Registers in detail.
13. a. Explain about various Computer Registers.  
(OR)  
b. Write about stored program organization.
14. a. Explain about various Input-Output Instructions.  
(OR)  
b. Discuss on various register reference instructions.
15. a. Explain any four addressing modes.  
(OR)  
b. Discuss on various logical and bit manipulation instructions.

## SECTION C

ANSWER ANY TWO QUESTIONS

2 X 20 = 40

16. a. Simplify the following using K map and draw the logic diagram

i.  $F(A,B,C) = A'C + A'B + AB'C + BC$

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

iii.  $F(A,B,C,D) = \sum(1,3,7,11,15)$

iv.  $F(W,X,Y,Z) = \sum(1,2,4,6,14,15)$

b. Explain about Binary Counters in detail.

17. a. Explain about the Basic Computer Instructions.

b. Discuss on various memory reference instructions.

18. a. Write about Interrupt Cycle with a neat diagram

b. Explain the general register organization in detail.

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