



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

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

FIRST SEMESTER – NOVEMBER 2016

**16UCS1MC02 - COMPUTER ORGANIZATION AND ARCHITECTURE**

Date: 07-11-2016  
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

**PART A**

**ANSWER ALL THE QUESTIONS**

**10 X 2 = 20 marks**

1. What are the salient features of combinational circuits?
2. What is a flipflop?
3. Define Multiplexer.
4. State the purpose of registers.
5. What is an instruction code?
6. What is an indirect address?
7. State the need of the Interrupt Enabled flip flop.
8. Write the different operations carried out during the fetch and decode phase.
9. List out various logical and bit manipulation instructions.
10. What are various status bit conditions?

**PART B**

**ANSWER ALL THE QUESTIONS**

**5 X 8 = 40 marks**

11. a. Explain about Boolean algebra with all basic identities.  
(OR)  
b. Explain Full Adder with truth table and circuit diagram.
12. a. Explain about 3bit bidirectional shift register with a neat diagram.  
(OR)  
b. Write about binary to decimal decoder with diagram.
13. a. Explain about various registers used in the architecture of a computer.  
(OR)  
b. Write about computer instruction formats.
14. a. Explain about the register reference instructions.  
(OR)  
b. Briefly explain the interrupt cycle with diagram.
15. a. Explain about various data transfer instructions.  
(OR)  
b. Discuss on Instruction formats.

**PART C**

**ANSWER ANY TWO QUESTIONS**

**2 X 20 =40 marks**

16. a. Simplify the following.

i.  $F(A, B, C) = A'BC + A'BC' + AB'C' + AB'C$  using Boolean algebra (3)

ii.  $F(w,x,y,z) = (0,1,2,4,5,6,8,9,12,13,14)$  using k-map. (7)

b. Explain about Binary Counters in detail.

17 . a. Write about the common bus system with a neat diagram.

b. Explain various memory reference instructions.

18. a. Explain about various addressing modes.

b. Write about the general register organization.

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