

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



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

**FIRST SEMESTER – APRIL 2018**

**17/16UCS1MC02– COMPUTER ORGANIZATION AND ARCHITECTURE**

Date: 26-04-2018

Dept. No.

Max. : 100 Marks

Time: 09:00-12:00

**PART - A**

**Answer ALL the Questions**

**(10 X 2 = 20 Marks)**

1. Define Flip flop.
2. Convert  $(1010.011)_2$  to a decimal number.
3. Define Encoder.
4. What is Multiplexer?
5. Define shift register
6. What is meant by Indirect Addressing?
7. List out the Memory Reference Instructions.
8. Define Control word.
9. What is Relative Address mode?
10. List out the Shift Instructions.

**PART - B**

**Answer ALL the Questions**

**(5 X 8 = 40 Marks)**

11. a) Simplify the following  
 $F(A,B,C,D) = \Sigma (0,1,2,4,5,7,11,15)$  using K – Map.

**(OR)**

- b) Explain about the JK flip flop.

12. a) Discuss in detail the working of Demultiplexer.

**(OR)**

- b) Write about the Types of ROMs.

13. a) Explain about the Instruction Formats.

**(OR)**

- b) Discuss about the Control Unit.

14. a) Explain about the I/O Instruction.

**(OR)**

b) Write about the In Interrupt cycle with flowchart.

15. a) Write about the General Register Organization.

**(OR)**

b) List and Explain the Logical and Bit Manipulation Instruction.

### **PART - C**

**Answer any TWO Questions**

**(2 X 20 = 40 Marks)**

16. a) Simplify the following

(i)  $F = X'YZ + X'YZ' + XY'Z' + XY'Z$  **(5 marks)**

(ii)  $F(w, x, y, z) = \Sigma(0, 1, 2, 8, 10, 11, 14, 15)$  using  $K$ -map. **(5 marks)**

b) Discuss about the Binary counters with parallel load. **(10 marks)**

17. a) Discuss in detail the Common Bus system. **(10 Marks)**

b) Explain about the Register Reference Instructions. **(10 Marks)**

18. a) Discuss about various addressing modes in detail **(10 Marks)**

b) Write the about the Data transfer and Manipulation Instruction.

**(10 Marks)**

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