LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIRST SEMESTER – **NOVEMBER 2018**

16UCS1MC02– COMPUTER ORGANIZATION AND ARCHITECTURE

Date: 24/10/2018 Dept. No. Max. : 100 Marks

Time: 09:00-12:00

SECTION A

ANSWER ALL THE QUESTIONS **10 X 2 = 20**

1. How an SR flip flop is transformed into a D flip flop?
2. What are synchronous sequential circuits?
3. What is the need of a shift register?
4. Define an "n" bit register.
5. State the importance of computer instructions.
6. What are the three instruction code formats?
7. What is a Branch Unconditionally instruction?
8. State the function of the LDA instruction.
9. List down the various data transfer instructions.
10. What is a relative address mode?

SECTION B

ANSWER ALL THE QUESTIONS **5 X 8 = 40**

11. a. Explain full adder with truth table and circuit diagram.

(OR)

b. Simplify the following Boolean algebra

i. ABC+A'B'C+A'BC+A'B'C

ii. XYZ + X Y' Z + XY Z'

12. a. Explain about encoders in detail.

(OR)

b. Write about multiplexers.

13. a. Discuss about various computer registers.

(OR)

b. Explain how the registers are connected to a common bus with a neat diagram.

14. a. Write about various register reference instructions.

(OR)

b. Explain about input/output configuration.

15. a. Discuss obout the organization of status bit registers.

(OR)

b. Briefly explain about various data manipulation instructions.

SECTION C

ANSWER ANY TWO QUESTIONS **2 X 20 = 40**

16. a. Simplify the following

i. $F(x,y,w, z) = \sum (0,2,4,6,12,14)$

ii. $F(x,y,z) = \sum (0,1,4,5,6,7)$

b. Explain about binary counters with a neat diagram.

17. a. Explain about stored program organization.

b. Discuss on the fetch phase of the instruction cycle with a neat diagram.

18. a. Explain the way how interrupts are handled.

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

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