LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIRST SEMESTER – **APRIL 2023**

16/17/18UCS1MC02/UCS 1502 – COMPUTER ORGANIZATION AND ARCHITECTURE

Date: 09-05-2023 Dept. No. Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

PART – A		**(10x 2 = 20 Marks)**
Q. No	**Answer ALL questions**	
1	Simplify the following expression using Boolean Algebra. abc+ab'+ac'+ab'c.	
2	What are combinational circuits?	
3	Define Decoders.	
4	Differentiate Multiplexers and De-Multiplexers.	
5	Give an example for Instruction code.	
6	Expand BUN and write its functionality.	
7	What do you mean by single flip flop?	
8	Write the purpose of PC register in common bus system.	
9	Define Index Addressing.	
10	Write the various status bit conditions?	
PART – B	**Answer ALL questions**	**(5x8 = 40 Marks)**
11 a)	Simplify the following expressions using Boolean algebra: i) AB+ A(Y+Y') ii) (BC'+A'D) (AB'+CD')	
	OR	
b)	Explain how a RS Flip Flop is worked with relevant diagrams and tables.	
12 a)	Design the 3-to-8-line Decoder and explain it with Truth Table.	
	OR	
b)	Explain about various types of ROM.	
13 a)	Describe about the Interrupt cycle with neat diagram.	
	OR	
b)	Classify Register and memory reference instructions.	
14 a)	Explain the Accumulator logic with Adder and Logic circuits.	
	OR	
b)	Design and describe the Basic computer with its components.	

15	a)	Illustrate the Direct, Indirect, Index and Zero addressing modes with relevant diagrams. OR
	b)	Explain about various Data manipulation instructions.
PART – C		**Answer any TWO questions** **(2 x 20 = 40 Marks)**
16		a) Describe JK flip-flop and compare it with T flip-flop. b) Explain the 4 bit serial shift registers.
17		a) Illustrate different types of instruction types with simple examples. b) Draw and explain the common bus system.
18		a) Write about instruction cycle with its flowchart. b) Briefly explain the status bit conditions.

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