

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034****B.C.A. DEGREE EXAMINATION – COMPUTER APPLICATIONS****SECOND SEMESTER – APRIL 2023****UCA 2502 – PROGRAMMING TECHNIQUES AND C**

Date: 03-05-2023

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. $(A + C)(AD + AD) + AC + C$	
2	What are combinational circuits? Give two examples.	
3	State the Applications of Multiplexers.	
4	Differentiate Decoders with Encoders.	
5	Write the instruction code format.	
6	Expand BUN and BSA.	
7	What do you mean by single flip flop?	
8	Write the purpose of AC register in common bus system.	
9	Define Indirect Addressing.	
10	Write down any two data transfer instructions and their purpose.	
PART – B		(5x8 = 40 Marks)
11 a)	Simplify the following expressions using Boolean algebra: a. $XY + X(Z + Z')$ b. $(BC' + A'D)(AB' + CD')$ OR b) Explain how a JK 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) Explain the various memory reference instructions in detail.	
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 any five addressing modes with relevant diagrams.	

b)	OR Explain about various Data manipulation instructions with simple examples.
PART – C (2 x 20 = 40 Marks)	
Answer any TWO questions	
16	a) Describe RS flip-flop and compare it with D flip-flop. b) Explain the shift registers with parallel load.
17	a) Illustrate different types of instruction format with simple examples. b) Draw and explain the common bus system.
18	a) Discuss the three types of CPU organization by means of addressing. b) Briefly explain the status bit conditions.

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