Seat No.: [redacted] Enrolment No 102CTBMCS2122[redacted]

NATIONAL FORENSIC SCIENCES UNIVERSITY

B. Tech - M. Tech computer science & Engineering. Semester - 3 - Jan-2023

Subject Code: CTBTCSE SIII P5 **Date:** 16/01/2023

Subject Name: Computer Organization & Architecture

Time: 11:00 am - 2:00 pm **Total Marks:** 100

Instructions:

1. **Write down each question on separate page.**
2. **Attempt all questions.**
3. **Make suitable assumptions wherever necessary.**
4. **Figures to the right indicate full marks.**

			Marks
Q.1	(a)	Explain Booth's multiplication algorithm with example	8
	(b)	Explain register stack and memory stack with neat sketches.	12
Q.2	(a)	What is assembler? Draw the flowchart of second pass of the assembler.	10
	(b)	Write a note on subroutine call and return.	10
Q.3	(a)	What is the significance of pipelining in computer architecture? Write a note on instruction pipeline.	10
	(b)	Explain Flynn's taxonomy for classifying parallel processors. Explain each class.	10
Q.4	(a)	Non-pipelined system takes 130ns to process an instruction. A program of 1000 instructions is executed in non-pipelined system. Then same program is processed with processor with 5 segment pipeline with clock cycle of 30 ns/stage. Determine speed up ratio of pipeline.	12
	(b)	Explain the different types of modes of transfer.	8
Q.5	(a)	Explain memory hierarchy design and its characteristics	10
	(b)	Explain the instruction cycle state diagram.	10
		or	
	(a)	Explain the input-output bus and interface modules	12
	(b)	Explain the differences between RISC and CISC computers	8