Name: Enrolment No:	ⓌUPES UNIVERSITY OF TOMORROW

UPES
End Semester Examination, May 2025

Course: B.Tech(CSE)   Semester:2nd
Program: Computer Organization and Architecture   Time   : 03 hrs.
Course Code: CSEG1032   Max. Marks: 100

Instructions: Calculator allowed

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Classify five differences between arithmetic and shift microoperation.	4	CO1
Q 2	Compare in five points about Hardwired and Micro programmed control unit.	4	CO2
Q 3	Identify two roles each about DMA operation and DMA controller.	4	CO4
Q 4	Demonstrate four points about the advantages of pipeline architecture over non pipeline architecture.	4	CO5
Q 5	Differentiate in four points about programmed I/O and interrupt initiated I/O.	4	CO4

SECTION B
(4Qx10M= 40 Marks)

Q 6	Explain about stored program organization. Illustrate with reference to 4096*16 memory, the flowchart of Instruction cycle.	10	CO2
Q 7	Illustrate CPU organization in terms of Single accumulator organization, General register organization and Stack organization.	10	CO3
Q 8	Discuss SISD, MISD, SIMD and MIMD computer architectures for parallel processing.	10	CO5
Q 9	A cache memory is accessed for 11, 9, 8 hits with reference to 12 instructions. The hit time is 100ns and the miss time is 300ns. Develop a comparison table for the above three cases with hit time, miss time, execution time and delay. **OR** Explain how the mapping from an instruction code to a microinstruction address can be done by means of a read-only memory. What is the advantage of this method.	10	CO4 CO2

	SECTION-C **(2Qx20M=40 Marks)**		
Q 10	Illustrate the equation X=(A+B)*(C+D) with One address instruction, Two address instruction, Three address instruction, Zero address instruction and RISC instruction.	**20**	**CO2**
Q 11	Explain with a diagram the data transfer from I/O device to CPU. Determine the procedure for setting and clearing the flag bit. **OR** Implement the flowchart of booth algorithm for multiplication of signed – 2's complement numbers. Multiply (-5) and (-7) using booth algorithm.	**20**	**CO4** **CO3**