K. K. Wagh Institute of Engineering Education & Research, Nashik

(An Autonomous Institute From A.Y. 2022-23)

WINTER-2025	
Exam Seat No.:	
Academic Year:2025-2026	Semester:V
Class:TY	Program:B.Tech
Branch Code:ADS/COM/CSD	Pattern:2023
Name of Course:Computer Organization and Architecture	Course Code:2301309
Max. Marks:60	Duration:2.30 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 02 page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

		Marks	CO
Question No. 1			
1	Show instruction cycle state diagram with interrupt	(6)	CO1
Question No. 2			
2	Explain any three data transfer instructions with example	(6)	CO2
Question No. 3			
3.a)	Show and explain memory hierarchy	(6)	CO3
	OR		
3.b)	Explain Direct Mapping with example	(6)	CO3
3.c)	Explain Interrupt Driven I/O with diagram	(6)	CO3
	OR		
3.d)	Compare memory programmed I/O and memory mapped I/O	(6)	CO3
3.e)	List advantages of DMA. Show typical DMA	(4)	CO3
	OR		
3.f)	Explain First In First Out memory replacement algorithm with example.	(4)	CO3
Question No. 4			
4.a)	Show six stage CPU instruction pipeline	(6)	CO4
	OR		
4.b)	Explain Data Flow Indirect Cycle with Diagram	(6)	CO4
4.c)	Show and explain Internal Structure of the CPU	(6)	CO4
	OR		
4.d)	Explain following dependencies with example: i) True Data ii) Procedural iii) Resource Conflict	(6)	CO4

4.e)	List and explain User Visible Registers	(4)	CO4

OR

4.f)	Show Superscalar Organization	(4)	CO4

Question No. 5

5.a)	Show and explain in brief flowchart for instruction cycle codes(ICC)	(6)	CO5

OR

5.b)	Show typical microinstruction formats	(6)	CO5
5.c)	Show and explain Control Unit with decoded inputs .	(6)	CO5

OR

5.d)	Explain with diagram functioning of microprogrammed control unit.	(6)	CO5
5.e)	Show and explain control unit microarchitecture	(4)	CO5

OR

5.f)	Explain microinstruction sequencing and execution in brief.	(4)	CO5

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