



K. K. Wagh Institute of Engineering Education & Research, Nashik
(An Autonomous Institute From A.Y. 2022-23)

SUMMER-2024	
Exam Seat No.:	
Academic Year:2023-2024	Semester:IV
Class:SY	Program:B.Tech
Branch Code:INT	Pattern:2022
Name of Course:Computer Organization and Architecture	Course Code:INT222013
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.

Question No. 1 Attempt following Question

- 1a) Describe the Harvard architecture. List the Advantages of the Harvard architecture (6) CO1

Question No. 2 Attempt following Question

- 2a) Explain the ASSUME, DB, and END directives in Assembly Language Programming with proper example (6) CO2

Question No. 3 Attempt following Question

- 3a) Explain the following Key Characteristics of Memory Systems- (5) CO3

Location

Unit of Transfer

OR

- 3b) Explain the concept of Set-Associative Mapping in memory management, and include a diagram illustrating its operation (5) CO3

- 3c) Describe the various signals necessary for establishing connectivity between memory and the processor with suitable diagram. 5M (5) CO3

OR

- 3d) List out the Difference between Spatial Locality and Temporal Locality (5) CO3

- 3e) List out the Difference between Direct and Associative Mapping (6) CO3

OR

- 3f) Explain different types of Direct Memory Access (DMA) (6) CO3

Question No. 4 Attempt following Question

- 4a) Describe the following signals used in the 80386 microprocessor architecture -*ERROR*, *READY*, *INTR*, *BS16*, *BUSY* (5) CO4

OR

- 4b) Explain the General Purpose Register of 80386 (5) CO4

- 4c) List out the Difference between Real and Protected Mode 80386 (5) CO4

OR

- 4d) Discuss the concept of Segmentation in Real Mode and Protected Mode of the 80386 microprocessor (5) CO4

- 4e) Describe the process of translating logical addresses to physical addresses in Protected Mode of the 80386 microprocessor, assuming paging is disabled (6) CO4

OR

- 4f) Describe the various attributes and flags present in a Page Table Entry, such as Present, Read/Write, User/Supervisor, and Accessed/Dirty. (6) CO4

Question No. 5 Attempt following Question

- 5a) List out the Advantages of Parallel Computing over Serial Computing. Also give Applications of Parallel Computing (5) CO5

OR

- 5b) List out the Difference between Single-Instruction Multiple-Data (SIMD) and Multiple-instruction, multiple-data (MIMD) (5) CO5

- 5c) With suitable diagram, explain Shared memory MIMD (5) CO5

OR

- 5d) Explain SMP (Symmetric Multi-Processing). List out the Characteristics of SMP (5) CO5

- 5e) List out the Disadvantages of Multicore Processors (6) CO5

OR

- 5f) List out the Difference between MultiCore and MultiProcessor System (6) CO5

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