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:II
Class:FY	Program:B.Tech
Branch Code: COM/ADS/CSD	Pattern:2023
Name of Course:Computational Thinking and Problem Solving	Course Code:2300118A
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 2 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	**Explain Computational Thinking and also explain its core components.**	(6)	CO1
Question No. 2			
2	**Explain Procedural and Object-Oriented programming paradigms with examples.**	(6)	CO2
Question No. 3			
3.a)	**Build an algorithm to generate the first N even numbers.**	(6)	CO3
	OR		
3.b)	**Build an algorithm to compute factorial of a number using iteration.**	(6)	CO3
3.c)	**Build an algorithm to compute power using exponentiation.**	(5)	CO3
	OR		
3.d)	**Build an algorithm to check whether a number is prime.**	(5)	CO3
3.e)	**Build an algorithm to generate Fibonacci series up to N terms.**	(5)	CO3
	OR		
3.f)	**Build an algorithm to find the GCD of two numbers.**	(5)	CO3
Question No. 4			
4.a)	**Build and explain an algorithm for linear search with an example**	(6)	CO4
	OR		
4.b)	**Build and explain bubble sort algorithm with stepwise execution.**	(6)	CO4
4.c)	**Build an algorithm for binary search and give example**	(5)	CO4
	OR		
4.d)	**Build an algorithm for selection sort with an example**	(5)	CO4

4.e)	**Solve Given the list `L = [12, 25, 37, 44, 59]`, apply Linear Search to find the element `44`**	(5)	CO4

OR

4.f)	**Apply the Binary Search algorithm to find a given element 40 in a sorted list by repeatedly dividing the search interval into halves. Given the sorted list `A = [10, 20, 30, 40, 50, 60]`**	(5)	CO4

Question No. 5

5.a)	**Apply and explain pattern matching with an example.**	(6)	CO5

OR

5.b)	**Apply and explain right-aligned text formatting with advantages.**	(6)	CO5
5.c)	**Apply and explain the process of paragraph justification for a fixed width of 30 characters. Illustrate your explanation and Consider the paragraph:** **"Text justification improves the alignment of text in documents."**	(5)	CO5

OR

5.d)	**Apply and explain text wrapping with example**	(5)	CO5
5.e)	**Build an algorithm for keyword counting in a document.**	(5)	CO5

OR

5.f)	**Apply and explain the concept of truncation with an example**	(5)	CO5

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