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

Marking Scheme

End-Sem Examination-I, Winter 2025

Academic Year: 2024-2025	Semester: II
Class: F.Y.	Program: B. Tech
Branch Code: COM/ADS/CSD	Pattern: 2023
Name of Course: Computational Thinking and Problem Solving	Course Code: 2300118A

Q. No	Details	Stewise Marks	Max Marks
Q.1	Explain Computational Thinking and also explain its core components.	Definition – 2M • Explanation – 3M Example /Diagram – 1M	6
Q.2	Explain Procedural and Object-Oriented programming paradigms with examples.	Procedural paradigm explanation + example: 3 Marks OOP paradigm explanation + example: 3 Marks	6
Q.3	a) Build an algorithm to generate the first N even numbers. **OR** b)Build an algorithm to compute the factorial of a number using iteration.	-Step by step iterations– 6 marks -Algorithm/pseudo code – 6 marks	6
	c) Build an algorithm to compute power using exponentiation. **OR** d) Build an algorithm to check whether a number is prime.	-Algorithm/pseudo code – 5 marks -Algorithm/pseudo code – 5 marks	5

	e))Build an algorithm to generate Fibonacci series up to N terms. **OR** f)Build an algorithm to find the GCD of two numbers.	-Algorithm/pseudo code – 5 marks -Algorithm/pseudo code – 5 marks	5
Q.4	a) Build and explain an algorithm for linear search with an example **OR** b) Build and explain bubble sort algorithm with stepwise execution.	-Algorithm/pseudo code – 6 marks -Algorithm/pseudo code – 6 marks	6
	c) Build an algorithm for binary search and give example **OR** d) Build an algorithm for selection sort with an example	-Algorithm/pseudo code – 5 marks -Algorithm/pseudo code – 5 marks	5
	e) Solve Given the list `L = [12, 25, 37, 44, 59]`, apply Linear Search to find the element `44` **OR** 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]`	Start from the first element. 1 mark Compare each element with `44`. 2 mark The search stops when `44` is matched at position 4. 2 mark Stepwise comparison / division – **3 marks** Correct identification of element – **2 marks**	5
Q.5	a) Apply and explain pattern matching with an example.	Explanation of concept – **4 marks** Example – **2 marks**	6

	OR b) Apply and explain right-aligned text formatting with advantages.	Explanation of concept – **3 marks** Example – **2 marks** Advantages / applications – **1 mark**	
	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." **OR** d) Apply and explain text wrapping with example	Explanation of process – **3 marks** Proper illustration/example – **2 marks** Explanation of process – **3 marks** Proper illustration/example – **2 marks**	5
	e) Build an algorithm for keyword counting in a document. **OR** f) Apply and explain the concept of truncation with an example	-Algorithm with example - 5 marks Algorithm / concept explanation – **3 marks** Example and correctness – **2 marks**	5