



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:II
Class:FY	Program:B.Tech
Branch Code:ADS/COM/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 pages.
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

- 1 i. What is computational thinking? List four pillars of it. (6) CO1
ii. Convert Decimal number (429.47) to Binary number. Show step by step solutions.

Question No. 2 Attempt following Question

- 2 i. Explain programming paradigm and give its classification. (6) CO2
ii. Compare Object Oriented Programming and Procedural programming.

Question No. 3 Attempt following Question

- 3.a) Show stepwise solution to Find square root of 81, Assume Initial guess is 15. (6) CO3

OR

- 3.b) Write an algorithm/pseudo code to find the smallest divisor of an integer. (6) CO3

- 3.c) Write an algorithm/pseudo code for generation of pseudo-random numbers. (5) CO3

OR

- 3.d) Write an algorithm/pseudo code for generating prime numbers. (5) CO3

- 3.e) Show stepwise solution to find raising a number to a large power for 4 raises to 5. (5) CO3

OR

- 3.f) Write an algorithm/pseudo code for Computing the nth Fibonacci number. (5) CO3

Question No. 4 Attempt following Question

- 4.a) Write an algorithm/pseudo code to Search an element in an array using Binary search. (6) CO4

OR

- 4.b) Sort the following elements using the Insertion sort method. Show the result of each pass. (6) CO4

54, 26, 93, 17, 77, 31, 44, 55, 20

- 4.c) Write an algorithm/pseudo code to search an element in an array using Linear search. (5) CO4

OR

- 4.d) Write an algorithm/pseudo code to sort elements using bubble or exchange sort method. (5) CO4

- 4.e) Write an algorithm/pseudo code to search an element in an array using binary search. (5) CO4

OR

- 4.f) Sort the following elements using the selection sort method. Show the result of each pass. (5) CO4

54,26,93,17,77,31

Question No. 5 Attempt following Question

- 5.a) Write an algorithm to adjust the length of the following text to 20 characters. Text: "Adjust me". (6) CO5

OR

- 5.b) Illustrate the linear pattern search algorithm's steps with a text example. (6) CO5

- 5.c) Outline the basic steps of the keyword search in text processing algorithm and state its applications. (5) CO5

OR

- 5.d) Compare and contrast the advantages of left-aligned and fully justified text. (5) CO5

- 5.e) Write an algorithm to Justify the following paragraph to the width of 50 characters. (5) CO5

Text: "Good morning.Have a great day.Exercise daily to have a healthy and fit lifestyle."

OR

- 5.f) What is pattern matching. Give a real-world application of pattern matching. (5) CO5

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