

St. Clare College

Autonomous, Bengaluru

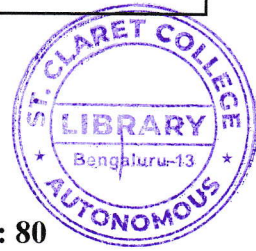
UG END SEMESTER EXAMINATION-DECEMBER 2024

BCA – I SEMESTER

CA 1124: PROBLEM-SOLVING TECHNIQUE

Roll No:

Date:



TIME: 3 hours.

8

MAX. MARKS: 80

This paper contains TWO printed pages and FOUR parts

Instructions:

1. Verify and ensure that the question paper is completely printed.
2. Any discrepancies or questions about the exam paper must be reported to the COE within 1 hour after the examination.
3. Students must check the course title and course code before answering the questions.

PART-A

Answer TEN questions. Each answer carries ONE mark.

[10x1=10]

1. The description of the steps in an algorithm is called _____.
a) Algocode b) Program c) Pseudocode d) Textcode
2. A computational problem specifies an input-output relationship. Say True or False.
a) True b) False
3. The space complexity of an algorithm is the _____ space taken by the algorithm to the input size.
a) Average b) Minimum c) Extra d) Total
4. _____ are predefined words that have special meanings to the compiler.
a) Keywords b) Constants c) Variables d) All of these
5. The function putchar() is an example for _____.
a) Formatted i/p function b) Formatted o/p function
c) Unformatted i/p function d) Unformatted o/p function
6. The symbol in every format specifier is _____.
a) & b) % c) # d) \$
7. _____ is a way of writing a number as the product of smallest numbers.
a) Ordering b) Inversing c) Factoring d) None of these
8. If there are n elements in an array, the index of the last element will be _____.
a) n-1 b) n+1 c) 2n d) n
9. Sorting by diminishing increment is also called _____.
a) Insertion sort b) Shell sort
c) Selection sort d) Bubble sort
10. Brute force algorithm is an example for _____ algorithm.
a) Sorting b) Text editing c) Text reversing d) Pattern searching

PART-B

Answer any FIVE questions. Each answer carries TWO marks.

[5x2=10]

11. What is an algorithm? Briefly explain the role of algorithms in computing.
12. Write an algorithm for exchanging the values of two variables.
13. Discuss C tokens.
14. Explain ternary or conditional operator with an example.
15. Write an algorithm to find the Greatest Common Divisor (GCD) of two integers.
16. What is sorting? List out the types of sorting.
17. What is text processing?

PART-C

Answer any FOUR questions. Each answer carries FIVE marks.

[4x 5=20]

18. Write an algorithm to find the factorial of a number.
19. Describe command line arguments with an example.
20. Write a C program to demonstrate the difference between structure & union.
21. What is an array? Write an algorithm for array order reversal.
22. Write a C program to perform the addition of two matrices.
23. Write an algorithm to demonstrate binary search.

PART-D

Answer any FOUR questions. Each answer carries TEN marks.

[4x10=40]

24. a) Demonstrate the algorithm for the summation of a set of numbers.
b) Write an algorithm to reverse the digits of an integer. (5+5)
25. Illustrate looping control structures in C with examples.
26. a) Discuss the syntax of switch case statement with an example.
b) Analyze bubble sort algorithm with an example. (5+5)
27. Explain prime factorization. Demonstrate the algorithm for computing the prime factors of an integer.
28. What is histogramming? Write an algorithm that demonstrates array counting.
29. Write an algorithm that demonstrates merge sort.