

St. Claret College

Autonomous, Bengaluru

UG END SEMESTER EXAMINATION-NOVEMBER 2025

BCA – I SEMESTER

CA 1124: PROBLEM-SOLVING TECHNIQUE

Roll No:

Date:

TIME: 3 hours.

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 ALL questions. Each answer carries ONE mark.

[10x1=10]

1. Factorial of 6 is
a) 120 b) 24 c) 720 d) 140
2. The algorithm with minimum time complexity can be categorized as _____ algorithm.
a) best case b) worst case
c) average case d) feasible case
3. The symbol \diamond represents _____ in flowchart.
a) condition b) dataflow c) loop d) none of the above
4. Comment on the statement, `scanf("%d", i);`
a) will execute without any error b) will give warning
c) will give error d) none of the above
5. The switch statement accepts _____ datatype.
a) int b) char c) long d) all of the above
6. The keyword used to transfer control from a function back to the calling function is
a) switch b) goto c) return d) exit
7. Two-dimensional array has _____ subscript(s).
a) 0 b) 1 c) 2 d) 3
8. The square root of a number can be found by factoring method. Say true or false.
a) true b) false
9. Sorting by exchange is also called
a) insertion sort b) bubble sort
c) selection sort d) merge sort
10. Which technique partitions the array for searching?
a) linear search b) binary search
c) both a and b d) none of the above



PART-B

Answer any FIVE questions. Each answer carries TWO marks.

[5x2=10]

11. Define algorithm and flowchart.
12. Draw a flowchart to find the product of four numbers.
13. What is datatype? Mention the basic datatypes in C language.
14. Define pointer. Give an example for declaring a pointer.
15. Generate the prime factors of 250.
16. Evaluate bubble sort for the following elements and arrange the same in ascending order:
56, 2, 14, 96, 75
17. What is text processing?

PART-C

Answer any FOUR questions. Each answer carries FIVE marks.

[4x5=20]

18. Explain the features of algorithm.
19. Explain the relational operators in C language.
20. Write a C program using switch statement to display the day of the week based on the day number.
21. Write an algorithm to find the smallest divisor of an integer.
22. Explain the logic used in raising a number to a large power with an example.
23. Write a C program to perform linear search.

PART D

Answer any FOUR questions. Each answer carries TEN marks.

[4x10=40]

24. a) Write an algorithm to generate Fibonacci series.
b) Draw a flowchart to swap two numbers using a temporary variable. (5+5)
25. a) Explain the working of while loop with syntax and a sample program
b) Explain union with a sample program (5+5)
26. a) What is an array? How are 1-D and 2-D arrays declared and initialized?
b) Explain the steps followed to reverse the elements of the array. (5+5)
27. a) Write an algorithm to find the maximum number in a set of numbers.
b) Write a C program to perform addition of two matrices. (5+5)
28. a) Write a C program to find the GCD of two integers.
b) Explain the concept of pattern searching with example. (5+5)
29. a) Write a C program to arrange the elements in ascending order using selection sort.
b) Demonstrate binary search for the given array for the search or key element 125.
Consider the array A= {3,12,18,25,89,115,125,173,200} (7+3)