



ST. FRANCIS DE SALES COLLEGE

A FRANSALIAN INSTITUTE OF HIGHER EDUCATION **AUTONOMOUS**

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END SEMESTER EXAMINATION –NOV/DEC 2025

COMPUTER SCIENCE – I SEMESTER BSC

25BSC14A/C: PROBLEM SOLVING TECHNIQUES

Time: 3 Hours

Max. Marks: 80

Instruction: *Answer should be written completely in English.*

SECTION - A

Answer any **FIVE** questions. Each question carries **TWO** marks.

(5X2=10)

1. Define an algorithm.
2. What are constants? Give examples.
3. What is the purpose of printf in C?
4. Define an arithmetic expression in C.
5. How to find maximum in an array.
6. What is selection sort?
7. Partition [5, 2, 9, 1] around pivot 5.

SECTION - B

Answer any **SIX** questions. Each question carries **FIVE** marks.

(6X5=30)

8. What is time complexity? Give an example.
9. What are C tokens? Explain each type with an example.
10. Explain the working of if-else and else-if ladder statements with examples.
11. List the difference between while and do-while loop in C.
12. Trace steps to find prime factors of a number.
13. How to count occurrences of a number in an array?
14. Discuss how text processing helps in handling and formatting data.
15. Write a C program that performs linear pattern searching in a given paragraph.

SECTION - C

Answer any **FIVE** questions. Each question carries **EIGHT** marks.

(5X8=40)

16. Discuss the rules for declaring and assigning values to variables in C. Give examples.
17. Write a C program to generate n numbers of the Fibonacci series.
18. Explain the use of break, continue and goto statements with examples.
19. Write a C program to find the largest among three numbers.



20. Analyse the following loop and describe what it prints and why:

```
int i=0;
while(i<5)
{
    if(i==3)
        break;
    printf("%d ", i);
    i++;
}
```

21. Write and explain an algorithm to raise a number to a large power.

22. Compare Selection Sort, Exchange Sort, and Insertion Sort in terms of efficiency and method.

