

# B.C.A. 1st Sem. Examination, Dec.-2022

## Bachelor Computer Application

Programming Principle & Algorithm

Paper Code – 128002 Subject Code – 102

Time: Three Hours

Maximum Marks: 75

Note: Attempt all the sections as per instructions.

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### Section-A

#### (Very Short Answer Type Questions)

Note: Attempt all five questions. Each question carries 3 marks.

3 × 5 = 15

1. What is a pointer? How the pointer variable declared & initialized?
2. What are primitive and non-primitive data types?
3. Write and explain Big-O notation.
4. Name different categories of constants in C-language.
5. Define Recursion with the help of example.

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### Section-B

#### (Short Answer Type Questions)

Note: Attempt any two questions out of the following three. Each question carries 7½ marks. 7½ × 2 = 15

6. Write an algorithm and draw corresponding flow chart to check whether the given number is prime or not.
7. Explain comma and conditional operator in C-language with example.
8. What do you mean by time complexity? Describe the difference between time complexity and space complexity.

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### Section-C

#### (Long Answer Type Questions)

Note: Attempt any three questions out of the following five questions. Each question carries 15 marks.

3 × 15 = 45

9. Write a program to swap the value of two variables using:
  - (i) Pass-by-values method
  - (ii) Pass-by-reference method
10. Write short notes on the following:
  - (i) printf()
  - (ii) scanf()
  - (iii) getch()
  - (iv) getchar()
  - (v) putchar()Also indicate corresponding header file in which these functions are defined.
11. (i) Write a C-program to print the average of all numbers between 11 to 99.  
(ii) How is a program compiled and executed in C? What is the difference between Run & Compile?
12. Explain Brainstorming and Divide & Conquer problem solving technique in detail.
13. Explain the following:
  - (i) Keywords and Identifiers
  - (ii) Swapping
  - (iii) Storage Classes