

# C Programming Examination

MCA 1st Year  
Dibrugarh University

November 12, 2024

## Instructions

- The exam duration is 3 hours.
- Attempt all questions.
- Write your answers neatly and clearly.
- Marks are indicated in brackets next to each question.

## Section A: Objective Type Questions (1 mark each)

Answer all questions. Each question carries 1 mark.

1. Which of the following is a correct syntax for a for-loop in C?

- (a) `for(i=0; i<n; i++)`
- (b) `for i=0; i<n; i++`
- (c) `for(i=0: i<n: i+)`
- (d) `for i=0: i<n: i++`

2. What is the output of the following code?

```
int x = 5;  
printf("%d", x++);
```

- (a) 4
- (b) 5
- (c) 6
- (d) Compiler Error

3. Which of these is not a valid variable name in C?

- (a) `int_number`
- (b) `_int`
- (c) `2number`
- (d) `number2`

## Section B: Short Answer Questions (5 marks each)

Answer any four questions. Each question carries 5 marks.

1. Explain the use of pointers in C programming. Give an example.
2. What is a structure in C? Write a code example to demonstrate defining and accessing a structure.
3. Describe the difference between `while` and `do-while` loops with an example.
4. Write a C program to find the largest element in an array of integers.
5. Explain the concept of recursion in C with an example.

## Section C: Long Answer Questions (10 marks each)

Answer any two questions. Each question carries 10 marks.

1. Write a C program that takes a number as input and checks if it is a prime number. Explain your code.
2. Discuss file handling in C programming. Write a program to read and write data to a file.
3. Explain dynamic memory allocation in C. Write a program that demonstrates the use of `malloc` and `free`.
4. Write a C program to perform matrix multiplication and explain the code.