

**ROLL NO:**

*(To fill the roll no. is compulsory)*

**ODD SEMESTER EXAMINATION - 2024-25**

**B.C.A Mock paper**

**Semester: I**

**SUBJECT CODE: BCA107**

**PROGRAMMING IN C**

**Time: 2:30 Hours**

**Maximum Marks: 70**

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**NOTE: THE QUESTION PAPER CONTAINS THREE SECTIONS.**

**ATTEMPT ALL THE SECTIONS.**

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**SECTION-A**

*NOTE: Attempt all parts of the following questions. (14 Marks)*

**Q. 1. Answer the following questions: (7 × 1 = 7 Marks)**

- a) What is the purpose of the `#include <stdio.h>` directive in C?
- b) Define a function prototype in C.
- c) What is the difference between global and local variables in C?
- d) What is a typedef in C? Provide an example.
- e) Explain the use of break and continue statements in loops.
- f) What is the difference between a syntax error and a runtime error in C?
- g) Name two storage classes in C and describe their scope and lifetime.

**Q. 2. Answer the following questions: (7 × 1 = 7 Marks)**

- a) What is the function of the `goto` statement in C?
  - b) How do you declare and initialize a 2D array in C?
  - c) Explain the difference between a stack and a heap in memory allocation.
  - d) What are wild pointers?
  - e) Describe the purpose of the `sizeof` operator in C.
  - f) What are bitwise operators in C? Provide an example.
  - g) What are the advantages of using macros in C?
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**SECTION-B**

*NOTE: Attempt all the questions. (7 × 2 × 2 = 28 Marks)*

**Q. 3.**

(i)

a) Write a program in C to calculate the sum of digits of a number using recursion.

**OR**

b) Explain the difference between call by value and call by reference in C with examples.

(ii)

a) Write a program to demonstrate the use of switch-case with a menu-driven approach.

**OR**

b) What is a nested loop? Write a program in C to print a multiplication table.

**Q. 4.**

(i)

a) Explain the difference between structure and union in C. Write examples of each.

**OR**

b) Write a program to reverse a string using a pointer.

(ii)

a) What is a function pointer? Write a program to demonstrate its usage.

**OR**

b) Write a program in C to sort an array using the bubble sort algorithm.

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**SECTION-C**

*NOTE: Attempt all questions. (14 × 2 = 28 Marks)*

**Q. 5.**

a) Explain the concept of file handling in C. Write a program to append data to a file.

**OR**

b) What are dynamic memory allocation functions in C? Write a program demonstrating the use of `calloc()` and `free()`.

**Q. 6.**

a) What is a String and also types of all important predefined function ?

**OR**

b) Write a program in C to implement matrix addition using functions.

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