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**ROLL NO:**

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

**ODD SEMESTER EXAMINATION - 2024-25**

**B.C.A AI/Cloud Mock paper**

**Semester: I**

**SUBJECT CODE: BCA104**

**PROGRAMMING IN C L**

**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: ( $7 \times 1 = 7$  Marks)**

- a) What is the purpose of the `void main()` function in C?
- b) Define a constant in C and explain its use.
- c) What is the difference between `float` and `double` data types in C?
- d) What is a preprocessor directive? Provide two examples.
- e) What is the purpose of the `getch()` function?
- f) Name any two bitwise operators in C and explain their use.
- g) What is the full form of `EOF` in C?

**Q. 2. Answer the following questions: ( $7 \times 1 = 7$  Marks)**

- a) Explain the use of the `else if` ladder in decision-making.
  - b) How do you declare a multi-dimensional array in C?
  - c) How can a character variable be initialized?
  - d) What is the difference between `scanf()` and `gets()` in C?
  - e) Who developed the UNIX operating system alongside C?
  - f) Write the solution of the expression  $(5 + 3) * 2 - 8 / 4$ .
  - g) How does the modulus operator `%` work in C?
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## SECTION-B

*NOTE: Attempt all the questions. ( $7 \times 2 \times 2 = 28$  Marks)*

### Q. 3.

(i)

a) Differentiate between while and do-while loops with an example.

**OR**

b) Explain the concept of operator associativity with an example.

(ii)

a) Write a C program to print the first 10 Fibonacci numbers using a loop.

**OR**

b) Describe the syntax of a for loop and write a program to calculate the sum of the first N natural numbers.

### Q. 4.

(i)

a) Explain the concept of function overloading in C and provide an example.

**OR**

b) What is the purpose of the `goto` statement? Write a program to demonstrate its usage.

(ii)

a) Describe the role of pointers in dynamic memory allocation. Write an example using `malloc()`.

**OR**

b) Write a program to check whether a number is a prime number or not.

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## SECTION-C

*NOTE: Attempt all questions. ( $14 \times 2 = 28$  Marks)*

### Q. 5.

a) Discuss the differences between arrays and linked lists. Write an example for a singly linked list.

**OR**

b) Explain the concept of recursion in C with an example program to calculate the GCD of two numbers.

### Q. 6.

a) What is the purpose of file modes in C? Explain the usage of `r`, `w`, and `a` modes with examples.

**OR**

b) Write a detailed note on the history and types of programming languages.

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