Graphic Era HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011)
University under section 2(f) of UGC Act, 1956

Term Evaluation (Odd) Semester Examination September 2025

Roll no.....

Name of the Course: **MCA/ MCA (AI & DS)**
Semester: **I**
Name of the Paper: **Programming and Problem Solving**
Paper Code: **TMC-103/TMD-103**
Time: 1.5 hour **Maximum Marks: 50**

Note:
(i) Answer all the questions by choosing any one of the sub questions
(ii) Each question carries 10 marks.

Q1. (10 Marks)

a. Define Computational Thinking. Describe the essential key Techniques used in computational thinking. **CO-1**

OR

b. Define various classification of programming languages. Explain different programming paradigms? **CO-1**

Q2. (10 Marks)

a. Draw a neat and clean flow chart to display the sum of first N term of the following series.

$$S = 1 + 2 + 3^2 + 4^3 + 5^4 + \text{------}$$ **CO-1**

OR

b. Explain the bitwise operators in C. Write a program to whether a given number is even or odd using bitwise OR (|) operator. **CO-2**

Q3. (10 Marks)

a. Write shorts notes on the following. **CO-2**

(i) Unary Operators.
(ii) Logical Operators.
(iii) Control statements

OR

b. What are the data types supported by C language? How is the size of an integer variable defined? What is the range (of values) it can support? **CO-1/ CO-2**

Q4. (10 Marks)

a. Write a C program to print the following pattern. Input number of rows. **CO-2**

Example: number of rows: 5

```
    E
  D   D
C   C   C
B   B   B   B
A   A   A   A   A
```

Mid Term Evaluation (Odd) Semester Examination September 2025

OR

b. Write a program in C to compute and print the first N composite numbers. **CO-2**

Q5. (10 Marks)

a. Write a C program to take a binary number as input from user and convert it into decimal number. **CO-2**

OR

b. Write a C program to input a time duration in seconds and print it in the following format.

input duration (in seconds): 132134

1 day, 12 Hours, 42 Minutes and 14 Seconds **CO-2**