# 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

## Mid Term (Odd) Semester Examination October 2024

Roll no...............................

Name of the Course and semester: B.Tech CSE IIIrd semester
Name of the Paper: Object oriented programming with C++
Paper Code: TCS-307

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.
- *(iii)* Please specify COs against each question.

**Q1.**                                                                        (10 Marks)
a. Write the features of OOP and State the differences between Object Oriented Programming and Procedural Oriented Programming.

OR

b. Explain the key reasons why Object-Oriented Programming (OOP) is important. Write a basic C++ program for student class details- name, age, marks as its private data members using input and display member functions.

**Q2.**                                                                        (10 Marks)
a. What are header files in C++? Explain the types of header files along with the examples.

OR

b. What are inline functions? Why do we use inline function? State the drawbacks of inline function.

**Q3.**                                                                        (10 Marks)
a. State with diagram the structure of C++ program. Why are classes called abstract data types.

OR

b. State the concept of call by value and call by reference using an example.

**Q4.**                                                                        (10 Marks)
a. Define constructors and destructors. Type of constructors with examples.

OR

b. Write a C++ program to choose the best index of the given array {3, 6, 7, 8, 11, 10, 2, 9, 1}. Print the maximum special sum.
Note: An index of the array is called best if the special sum of this index is maximum across the special sum of all the other indices. To calculate the special sum for any index you pick the first element that is and add it to your sum. Now you pick next two elements i.e., and and add both of them to your sum. Now you will pick the next elements, and this continues till the index for which it is possible to pick the elements.

**Q5.**                                                                        (10 Marks)
a. Define unary and binary operator overloading with member function and friend function along with example.

OR

b. What is function overloading . Also state friend function using an example.