Graphic Era HILL UNIVERSITY

Established by an Act of the State Legislature of Uttarakhand (Admission Session 12 of 2011) Uniformly under section 2(f) of UGC Act, 1956

End Term (Even) Semester Examination May-June 2025

Name of the Program and semester: **B.Sc. (IT) - II** Roll no. [redacted]

Name of the Course: **Introduction to Object-Oriented Programming**

Course Code: **TBI-202**

Time: 3 hour Maximum Marks: 100

Note:

(i) All the questions are compulsory.
(ii) Answer any two sub questions from a, b and c in each main question.
(iii) Total marks for each question is 20 (twenty).
(iv) Each sub-question carries 10 marks.

Q1. (2X10=20 Marks) CO-1,CO-2

a. What are the features of Object-oriented programming. Compare and contrast between structured programming and object-oriented programming.

b. (i) What are the various storage classes available in C++? Explain with a suitable example.
(ii) Explain working of insertion and extraction operators in C++ with the help of suitable example.

c. How string data type in C++is different from char array? Explain various functions and operators associated with string data type.

Q2. (2X10=20 Marks) CO-2, CO-3

a. Create a class **Employee** with following members.
Member data: Name, Department, Salary, Eid.
Member functions: void input(), void output().
Create an array of Employee's object to input records of **N** employees. Now sort this array of objects in ascending order of salary and display all the information about each employee.

b. What is the use of this pointer in C++? How do we allocate and deallocate memory dynamically in C++? Elaborate with a suitable example.

c. How does static polymorphism different from dynamic polymorphism. Explain with a suitable example.

Q3. (2X10=20 Marks) CO-3, CO-4

a. What is a constructor in C++? How many types of constructors are there in C++? Explain the advantage of constructors with the help of an example. What is the use of destructor?

b. Write a program in C++ to implement friend function of three different classes.