Uttarakhand Adhiniyam Sankhya 12 of 2011)
University 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.