BACHELOR OF COMPUTER APPLICATIONS (BCA)

(Revised Syllabus)

BCA(Revised Syllabus)/ASSIGN/SEMESTER-III

ASSIGNMENTS

(July – 2026 & January - 2027)

MCS-021, MCS-023, MCS-014, BCS-031, BCSL-032, BCSL-033, BCSL-034,

SCHOOL OF COMPUTER AND INFORMATION SCIENCES
INDIRA GANDHI NATIONAL OPEN UNIVERSITY
MAIDAN GARHI, NEW DELHI – 110 068

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Important Notes

1. Submit your assignments to the Coordinator of your Study Centre on or before the due date.
2. Assignment submission before due dates is compulsory to become eligible for appearing in corresponding Term End Examinations. For further details, please refer to BCA Programme Guide.
3. To become eligible for appearing the Term End Practical Examination for the lab courses, it is essential to fulfill the minimum attendance requirements as well as submission of assignments (on or before the due date). For further details, please refer to the BCA Programme Guide.

Course Code	**:**	**BCSL-032**
Title	**:**	**C++ Programming Lab**
Assignment Number	**:**	**BCA (III)/L-032/Assignment/2026-27**
Maximum Marks	**:**	**50**
Weightage	**:**	**25%**
Last date of Submission	**:**	**31st October, 2026 (for July 2026 Session)**
	:	**30th April, 2027 (for January 2027 Session)**

This assignment has two questions. Answer both the questions. These questions carry 40 marks. Rest 10 marks are for viva-voce. Write C++ program and take its output as part of solution. Please go through the guidelines regarding the assignments given in the programme guide for the format of presentation.

Q1: **(20 Marks)**

Write a C++ program to create a class Employee with data members empId, name, basicSalary, and department. Include member functions to:

- Input details for an array of 5 employees
- Calculate gross salary (basic salary + 20% HRA + 10% DA)
- Display all employee details in tabular format, sorted by gross salary in descending order

Use appropriate constructors to initialize objects and demonstrate the use of both default and parameterized constructors in your program. Make assumptions, if necessary.

Q2: **(20 Marks)**

Write a C++ program that demonstrates the use of inheritance and polymorphism by creating a base class Shape with a virtual function area(). Derive three classes, namely, Circle, Rectangle, and Triangle from Shape, each overriding the area() function to calculate and return the respective area.

Your program should:

- Use an array of base class pointers to store objects of the derived classes
- Call the area() function through the base class pointer to demonstrate runtime polymorphism
- Display the area of each shape with appropriate labels