

BACHELOR OF COMPUTER APPLICATIONS (BCA)

(Revised Syllabus)

BCA(Revised Syllabus)/ASSIGN/SEMESTER-IV

ASSIGNMENTS

(July – 2026 & January - 2027)

**(BCS-040, MCS-024, BCS-041, BCS-042,
MCSL-016, BCSL-043, BCSL-044, BCSL-045)**



**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	:	MCS-024
Course Title	:	Object Oriented Technologies and Java Programming
Assignment Number	:	BCA (IV)/024/Assignment/2026-27
Maximum Marks	:	100%
Last Date of Submission	:	31st October, 2026 (for July 2026 Session)
	:	30th April, 2027 (for January 2027 Session)

There are Three questions in this assignment which carry 80 marks, in total. Rest 20 marks are for viva-voce. Answer all the questions. Give appropriate comments in programs to increase understandability. Wherever required, you may write java program, run it on machine and take its output as part of solution. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation.

Q1: (30 Marks)

What is Object Oriented Programming (OOP)? Explain the four fundamental principles of OOP, namely, Encapsulation, Abstraction, Inheritance, and Polymorphism with suitable examples.

Q2: (30 Marks)

Explain the concept of Inheritance in Java. Describe the different types of inheritance supported by Java (single, multilevel, hierarchical) and explain why Java does not support multiple inheritance through classes. How is this limitation overcome using interfaces?

Q3: (20 Marks)

Explain multithreading in Java. Describe the life cycle of a thread with a neat diagram, and write a Java program to create a thread using both the **Thread** class and the **Runnable** interface.