

BACHELOR OF COMPUTER APPLICATIONS (BCA)

(Revised Syllabus)

BCA(Revised Syllabus)/ASSIGN/SEMESTER-V

ASSIGNMENTS

(July - 2026 & January - 2027)

(BCS-051, BCS-052, BCS-053, BCS-054, BCS-055

BCSL-056, BCSL-057, BCSL-058)



**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-056
Course Title	:	Network Programming and Administration Lab
Assignment Number	:	BCA(V)/L-056/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)

Note: This assignment has two questions. Answer all the questions. These questions carry 40 marks. Rest 10 marks are for viva voce. You may use illustrations and diagrams to enhance the explanations. Please go through the guidelines regarding assignments given in the Programme Guide for the format of presentation. Make necessary assumptions.

Q1:

- (a) Write a TCP client and TCP server program in C language on Unix/Linux, where the client program interacts with the server as specified below: **(12 Marks)**
- The client connects to the server and sends a string.
 - The server program sends an acknowledgment message confirming receipt of the string.
 - The server program converts the received string to UPPERCASE and calculates the total number of vowels present in it, then sends both results back to the client.
 - The client receives the processed output and sends a final acknowledgment back to the server before terminating the connection.
- (b) Write the step-by-step procedure to install a packet analyzer (e.g., *Wireshark* or *tcpdump*) on Unix/Linux. Explain the distinction between capture filters and display filters with two practical examples for each. **(8 Marks)**

Q2:

- (a) Execute the following Linux commands on your terminal and present the command syntax along with sample outputs: **(8 Marks)**
- head
 - grep
 - ping
 - cat
- (b) Configure a DNS server (such as BIND9) or FTP server (such as *vsftpd*) on a Linux operating system. Provide a complete step-by-step installation and configuration guide, and show how to view and sort active service connections using commands like *netstat* or *ss*. **(12 Marks)**