BACHELOR OF COMPUTER APPLICATIONS (BCA)

(Revised Syllabus)

ASSIGNMENTS

(July - 2025 & January – 2026 sessions)

(BCS-062,MCS-022,BCSL-063)

SCHOOL OF COMPUTER AND INFORMATION SCIENCES
INDIRA GANDHI NATIONAL OPEN UNIVERSITY
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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-063
Course Title	:	**Operating System Networking Management Lab**
Assignment Number	:	**BCA(VI)/L-063/Assignment/2025-26**
Maximum Marks	:	**50**
Weightage	:	**25%**
Last date of Submission	:	**31st October, 2025 (For July, Session)**
	:	**30th April, 2026 (For January, Session)**

Note: This assignment has five questions for a total of 40 marks. The rest 10 marks are for viva voce. For each question, you must write the required shell script or provide a step-by-step procedure with screenshots. Attach all scripts and screenshots with your assignment.

Q1. Shell Scripting (Linux/UNIX)

(**a**) Write a shell script named backup.sh that performs the following tasks:

1. It should accept a source directory path and a destination directory path as command-line arguments.
2. It should check if the source directory exists. If not, it should print an error message and exit.
3. It should create a compressed backup of the source directory in the destination directory. The backup filename should be in the format backup_YYYY-MM-DD.tar.gz (e.g., backup_2025-10-25.tar.gz).
4. After a successful backup, it should print a message: "Backup of [source_directory] completed successfully at [destination_path/backup_filename]".

(**b**) Write another shell script named user_check.sh that takes a username as input. The script should check if the given user is currently logged into the system.

- If the user is logged in, it should display: "[Username] is currently active on the system."
- If the user is not logged in, it should display: "[Username] is not logged in."

(8 Marks)

Q2. Linux/UNIX System Administration

Perform the following system administration tasks. For each task, write the exact command(s) you would use and provide a brief explanation of what the command does.

(**a**) Create a new user account named intern with /home/intern as their home directory and /bin/bash as their default shell.
(**b**) Create a new group named devteam. Add the user intern and an existing user manager to this new group.
(**c**) **a** Create a directory named /project/data. Change its ownership so that the user manager is the owner and the group devteam is the group owner.
(**d**) Set the permissions for the /project/data directory such that:
* The owner (manager) has read, write, and execute permissions.
* Members of the devteam group have read and execute permissions only.
* Other users have no permissions at all.

(8 Marks)

Q3. Windows Server Administration

Provide a step-by-step procedure with screenshots for the following tasks in a Windows Server environment.

(a) Create and Configure a New User:

1. Open "Active Directory Users and Computers".
2. Create a new user with the following details:
   - Full Name: Riya Sharma
   - User logon name: riya.s
3. Set a password for the user and configure the account so that the "User must change password at next logon".
4. Add this new user to the "Marketing" group (assume the group already exists).

(b) Create a Shared Folder:

1. Create a new folder named MarketingReports on the C: drive.
2. Share this folder with the network name Marketing_Share.
3. Configure the share permissions so that the "Marketing" group has "Full Control".
4. Configure the NTFS permissions so that the "Marketing" group has "Modify" permissions, and the "Administrators" group has "Full Control".

(8 Marks)

Q4. Network Configuration and Services

Provide a step-by-step procedure with screenshots to perform the following network configurations.

(a) Configure a Static IP Address (Windows):
Configure a network adapter in Windows with the following static IP settings:

- IP Address: 192.168.1.50
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.1.1
- Preferred DNS Server: 8.8.8.8

(b) Install and Configure a Basic DHCP Server (Windows Server):

1. Install the DHCP Server role on your Windows Server.
2. Create a new IPv4 scope with the following details:
   - Scope Name: Office_Network
   - Start IP Address: 192.168.1.100
   - End IP Address: 192.168.1.200
   - Subnet Mask: 255.255.255.0
   - Router (Default Gateway): 192.168.1.1
   - DNS Server: 8.8.8.8
3. Activate the scope.

(8 Marks)

Q5. Linux/UNIX Command-Line Tasks

Write the single-line command to perform each of the following tasks in a Linux/UNIX terminal.

(a) Find and display all lines in the file /var/log/syslog that contain the word "error" (case-insensitive).
(b) List all running processes on the system and find the Process ID (PID) of the apache2 process.
(c) Create a symbolic link named webapp in your home directory that points to /var/www/html.
(d) Display the disk space usage of all mounted file systems in a human-readable format (e.g., KB, MB, GB).
(e) Schedule a job using cron to run the script /home/user/maintenance.sh at 2:00 AM every Sunday.

(8 Marks)