

(2½ Hours)

[Total Marks: 75]

- N. B.: (1) **All** questions are **compulsory**.
 (2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
 (3) Answers to the **same question** must be **written together**.
 (4) Numbers to the **right** indicate **marks**.
 (5) Draw **neat labeled diagrams** wherever **necessary**.
 (6) Use of **Non-programmable** calculators is **allowed**.

1. **Attempt any three of the following:** 15
 - a. Explain the duties of Linux system administrator in creating and managing users.
 - b. Write a short note on bash.
 - c. Discuss the difference between piping and redirection with the help of an example.
 - d. With the help of an example, write the steps to mount a device in Linux.
 - e. List the differences between hard and symbolic links.
 - f. Explain the steps to create and manage your own repository in yum.

2. **Attempt any three of the following:** 15
 - a. Explain the different kinds of partitions in linux and their characteristics.
 - b. Discuss the steps to create a swap file.
 - c. What are runlevels in Linux? Explain the commands used to manage services.
 - d. Discuss the steps to configure key based SSH authentication.
 - e. Elaborate what basic permissions are and how they are applied to files and directories in linux.
 - f. Explain the user information configuration file.

3. **Attempt any three of the following:** 15
 - a. State the steps to setup a firewall that allows SSH packets.
 - b. What are modules in a firewall? Explain the limit module.
 - c. Explain how to create and manage certificates with openssl.
 - d. List the steps to encrypt, share and decrypt files using GPG.
 - e. With the help of an example, explain exporting and mounting of NFS share.
 - f. Discuss the steps to setup a Samba server.

4. **Attempt any three of the following:** 15
 - A Write a short note on cache-only nameserver.
 - B Explain the DHCP server configuration.
 - C Discuss the role of MUA, MTA, and MDA in the email process.
 - D Explain the various parameters for secure internet configuration of Postfix server.
 - E State the steps to setup virtual hosts in Apache.
 - F Explain how the DirectoryIndex, Options, AllowOverride, and Order directives in Apache.

5. **Attempt any three of the following:** 15
 - a. Discuss the various ways in which a shell script can be executed.
 - b. Write a shell script to add ten users, remove their passwords and add them to the group students. Use for loop.
 - c. Explain the steps to setup a quorum disk.
 - d. Discuss the steps to setup fencing.
 - e. Explain the steps to perform an automated installation using a kickstart file.
 - f. List the steps to configure DHCP for PXE boot.