(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:
a.   Explain the duty of the Linux system administrator in configuring a secure system.
b.   Write short note on Piping and Redirection.
c.   Explain Bash shell in detail.
d.   Explain cron in detail for job scheduling.
e.   Give differences between symbolic and Hard Links.
f.   Write steps to Create and Manage Repositories.

2.   Attempt *any three* of the following: **15**
a.   List and explain different File Systems supported by Linux.
b.   What are Snapshots? Give steps to Manage Snapshot.
c.   How can rc scripts be managed using chkconfig?
d.   What are different SSH security settings? Explain.
e.   Explain group configuration file.
f.   What are file and directory permissions? How to change permissions.

3.   Attempt *any three* of the following: **15**
a.   What is Firewall? How to allow basic services through firewall?
b.   What is NAT? Give steps to Configure NAT.
c.   Write steps for Creating and Managing Self-Signed Certificate.
d.   How to Encrypt Files with GPG?
e.   What is NFS? What are advantages and disadvantages of NFS?
f.   Give Steps to Configure Samba Server.

4.   Attempt *any three* of the following: **15**
a.   What is DNS server? List and explain DNS server Types.
b.   Write steps for Setting Up a Cache-Only Name Server.
c.   Explain the components of email delivery process.
d.   Explain different Secure Internet Configurations for Postfix.
e.   What are modes of Apache? Explain some performance parameters for these modes.
f.   What is Apache Module? How to add modules in Apache web server?

5.   Attempt *any three* of the following: **15**
a.   What are different ways to execute shell script? Explain in detail.
b.   Write a script to accept the number from user and print its multiplication table.
c.   How will you setup bonding?
d.   Explain Configuration of GFS2 File Systems.
e.   Write steps for Configuring the DHCP Server for PXE Boot.
f.   Explain kickstart file to perform an automated installation.