(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.   List and explain the duties of Linux System Administrator.
b.   Enumerate and describe group management commands.
c.   What are permissions for files and directories? How to modify permissions.
d.   Distinguish between RPM and YUM.
e.   Write frequently used rpm commands. How to use RPM for installing software
f.   Explain the concept of PackageKit and write architecture of PackageKit

2.   Attempt _any three_ of the following: 15
a.   Write different types of partitions. How will you create partitions with the help of fdisk.
b.   List and explain different File Systems supported by linux.
c.   Explain the parameters associated with ifcfg-eth0.
d.   Explain the steps in configuring the Static Routes.
e.   List the various run levels. Write the role of /etc/initab.
f.   Write different features of SSH protocol.

3.   Attempt _any three_ of the following: 15
a.   Write the steps configuring a DHCP Server.
b.   Explain the option statement of named.conf file with at least five parameters
c.   Enumerate resource records are commonly used in zone files.
d.   What is Apache and explain different features of Apache.
e.   Describe different protocol associated with MDA.
f.   Write the steps to configure samba server.

4.   Attempt _any three_ of the following: 15
a.   Write and explain example top command.
b.   Write a short note on 1.du 2.df
c.   Write commands can use to display detailed information about the system's hardware?
d.   What are some common modules available in rsyslog, and write functionalities do they provide ?
e.   What graphical tools can be used to manage and view log files in Linux ?
f.   Explain configuration file for cron jobs is the /etc/crontab.

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5. **Attempt** *any three* **of the following:** 15

a. Explain the concept of INPUT, OUTPUT, and FORWARD chains.

b. What is NAT, and how does it work with iptables

c. What is SSL, and how does it enhance security for web communications?

d. Write steps for Creating and Managing Self-Signed Certificate

e. What is the syntax for a basic while loop in a shell script ? Write a shell script to print table of 2 using while loop.

f. Describe the steps to modify the GRUB configuration to change the default boot entry.