**\\ LOKESH PANCHAL \\**

**Module: 1 - Linux server –**

**Understand and use essential tools**

**1.**What is the minimum number of partitions you need to install Linux?

**Ans.** **Root Partition (/)**: This is where the main file system and the operating system files reside. It contains all the necessary files and directories for the system to function.

**Swap Partition**: This is used as virtual memory in case the system's physical RAM is fully utilized. The swap partition can help manage memory more efficiently, especially on systems with limited

**Home Partition (/home)**: Storing user data and personal files separately from the system files can make it easier to upgrade or reinstall the operating system without affecting personal data.

**2.** Explain About Chmod Command **Ans.** Numerical (Octal) Representation:

Read = 4 Write = 2 Execute = 1

For example: chmod 755 filename sets permissions to rwxr-xr-x. Symbolic Representation:

u = user (owner) g = group o = others a = all

For example: chmod u=rwx,g=rx,o=rx filename sets the same permissions as above.

chmod +x filename adds execute permission for all.

chmod g-w filename removes write permission from the group.

Option:

-R: Apply changes recursively to directories and their contents (chmod -R 755 directory).

**3.** How to check Linux memory utilization **Ans.**  free -h: Displays memory usage in a human-readable format.  vmstat: Shows memory, swap, and CPU usage.  top or htop: Provides a real-time view of system resources, including memory usage.

**4.** Use grep to search for specific patterns in files. **Ans.** To use grep to search for specific patterns in files, follow these examples:  **grep "pattern" filename  grep -r "pattern" directory/**

** grep -i "pattern" filename  grep -n "pattern" filename**

**5.** Get Connecting on a linux server by ssh **Ans**. Sure, here's a brief guide to connect to a Linux server via SSH in four lines: 1.Open your terminal. 2.Use the command ssh username@server\_address. 3.Enter your password when prompted. 4.You're now connected to the server via SSH.Top of Form

**Bottom of Form**

**6.** Create 5 files in the /tmp directory, and then use tar and gzip to bundle and compress the files.

**Ans.** touch /tmp/file1 /tmp/file2 /tmp/file3 /tmp/file4 /tmp/file5

tar -czf /tmp/files.tar.gz -C /tmp file1 file2 file3 file4 file5

This will create 5 empty files (file1 to file5) in the /tmp directory, then use tar with gzip compression to bundle them into a compressed archive named files.tar.gz located in the /tmp directory.

**7.** Describe the root account **Ans.** The root account in Linux is the superuser with unrestricted access to all files and commands on the system, used for administrative tasks requiring elevated privileges.

**8.** What is shell? **Ans.**  A shell is a command-line interface that interprets user commands to interact with an operating system, facilitating control over file systems, programs, and system configurations. Examples include Bash (Bourne Again Shell) in Unix-like systems and Command Prompt in Windows.

**9.** What is Linux? **Ans.** Linux is an open-source operating system kernel originally developed by Linus Torvalds in 1991. It is widely used today in various distributions (distros) such as Ubuntu, Fedora, and Debian, offering a powerful and customizable platform for computing tasks ranging from servers to personal computers and embedded devices.

**10.** What is Bash? **Ans.** Bash, short for "Bourne Again Shell," is a widely-used command-line interpreter and scripting language for Unix-like operating systems. It provides users with a powerful interface to execute commands, automate tasks through scripts, and manage file systems and processes.

**11.** You have a new empty hard drive that you will use for Linux. What is the first step you use. **Ans.** To prepare a new empty hard drive for Linux: 1. Partitioning: Use a tool like fdisk or parted to create partitions on the drive (/dev/sdX). 2. File System: Format the partitions with a suitable file system like ext4 using mkfs.ext4 /dev/sdX1. 3. Mounting: Mount the formatted partitions to directories (mount /dev/sdX1 /mnt) to begin installation or use.

**12.** Write the Linux command to show the current working directory. **Ans.** To show the current working directory in Linux, you can use the pwd command. Here it is:

**13.** write the Linux command to get help with various options. **Ans.** To get help with various options for a Linux command, you can use the --help option. For example, if you want help with the ls command, you would use: You can replace ls with any other command to get help for that specific command. Another way to get help is by using the man (manual) command followed by the name of the command you want help with:

**14.** Write the linux comman! to display what all users are currently doing. **Ans.** To display what all users are currently doing in Linux, you can use the w command. Here's the command:

**15.** write the Linux command to get information about the operating system. **Ans.** To get information about the operating system in Linux, you can use the uname command with the -a option to get detailed information:

Alternatively, you can use the lsb\_release command with the -a option for more detailed distribution-specific information (if available on your system):

Another useful command is cat /etc/os-release to get information about the operating system:

**16.** Write the Linux command to create a hard link of a file. **Ans.** To create a hard link of a file in Linux, you can use the ln command. Here is the syntax:

For example, to create a hard link named hardlink.txt to a file named original.txt in the current directory, you would use:

**17.** Write the Linux command to create a soft link of a file as well as Directory. **Ans.** ln -s /path/to/original/file /path/to/soft/link ln -s original.txt softlink.txt ln -s /path/to/original/directory /path/to/soft/link ln -s original\_dir softlink\_dir

**18**. Write the Linux command! to search for specific pattern in a file. **Ans.** grep "pattern" /path/to/file grep "error" log.txt Some useful options for grep include:

* -i: Ignore case distinctions.
* -r or -R: Recursively search directories.
* -n: Show line numbers with output.

grep -in "error" log.txt

**19.** Write the Linux command to show the use of basic regular expressions using grep command. **Ans.** To use basic regular expressions with the grep command in Linux:

1. **Match lines starting with "pattern": grep "^pattern" filename**
2. **Match lines ending with "pattern": grep "pattern$" filename**
3. **Match lines containing any digit: grep "[0-9]" filename**
4. **Match lines with zero or more 'a's followed by 'b':** grep "a\*b" filename