**MODULE : 1 LENUX SERVER - UNDERSTAND AND USE ESSENTIAL TOOLS**

**ANS.1**  I recommend three partitions: 1 Root Partition 2 Swap Partition 3 Home Partition.

**ANS.2** allows an administrator to set or modify a file's permissions.

**ANS.3** Linux df command

**ANS.4** The grep utility searches the given input files selecting lines which match one or more patterns

**ANS.**5 Open the list of your servers and click on the one you need. Click the Instructions button.

Open a terminal (for Linux) or a command line (for Windows) on your computer. Enter the command:

The connection will prompt you for a password. Enter the password from the instructions.

**ANS.6** Open the terminal application in Linux.

Run tar command to create an archived named file.tar.gz for given directory name by running: tar -czvf file.tar.gz directory.

Verify tar.gz file using the ls command and tar command.

**ANS.7** The root account has virtually unlimited access to all programs, files, and resources on a system.

**ANS.8** A shell is a type of computer program called a command-line interpreter that lets Linux and Unix users control their operating systems with command-line interfaces**.**

**ANS.9** Bash is a legitimate interface to your computer, and it's not just for server admins and programmers. It can be your desktop, your word processor, your graphics.

**ANS.10** What is Linux? Linux is a Unix-like, open source and community-developed operating system (OS) for computers, servers, mainframes, mobile devices and embedded devices. It is supported on almost every major computer platform, including x86, ARM and SPARC, making it one of the most widely supported operating systems.

**ANS.11** sudo lshw -C disk to confirm disk is seen by the BIOS and work out it's path. In this case, it's /dev/sdb.

Partition the disk with a single partition: sudo parted /dev/sdb.

Format the disk: sudo mkfs -t ext4 /dev/sdb1.

Create mount point: .

Update the filesystem table: .

Set permissions:

**ANS.12**'pwd' command and '/bin/pwd' binary.

**ANS.**13 -d option : It is used when you just want to get an overview about any shell built-in command i.e it only gives short description.

-m option : It displays usage in pseudo-manpage format.

-s option : It just displays only a short usage synopsis for each topic matching.

**ANS.14** The 'w' command

**ANS.15** uname –a

**ANS.**16 The ln command creates hard links by default.

**ANS.17** ln -s command with the original file path and the desired symlink name.

**ANS .18** Grep is a Linux command-line tool that allows users to search files for a specified textual pattern.

**ANS 19 to** search for matching patterns in a file.

**Module :2- Linux server - Operate running system**

**ANS. 20** use the -e or -A option.

**ANS. 21** execute the kill command followed by PID.

**ANS. 22** Htop is a process viewer and a text mode application for system monitoring in real-time, similar to top .

**ANS.23** To reboot or shut down a Linux machine, we'll often use the systemctl (system control) command. Some commands require system administrator privileges. The root user has such privileges. So we can reboot a machine by simply typing systemctl reboot,

**Module :3- Linux server - Configure local storage Assignmen**

**ANS.24** ext4 is commonly used on Linux, and NTFS is almost exclusively used with Windows.

**ANS.25** . Manage disk partitions and filesystems using tools like fdisk, mkfs, and mount

**ANS.26**Click Start, right-click This PC, and then click Manage. The Computer Management window opens.

Click Disk Management. ...

In the list of drives and partitions, confirm that the system and utility partitions are present and are not assigned a drive letter.

**ANS.27** Creating single logical volumes of multiple physical volumes or entire hard disks

**ANS.28**  Using the free -m command to check your Linux memory usage, displays the values as MB instead of KB.

**ANS. 29** Check out our guide on how to check memory usage, process memory usage, and even check historical memory usage via the Linux command.

**ANS.30** 16 Terabytes (TB).

**ANS.31** 8 exbibytes minus one byte

**Module: 4- Linux server - Manage user and Groups and working with file systems**

**ANS.32** Create and modify groups. To add a group in Linux, use the groupadd command: $ sudo groupadd demo. ...

Change the group ID. You can change the group ID of any group with the groupmod command and the --gid or -g **option**: $ sudo groupmod -g 1011 demo1. ...

Rename a group. ...

Add and remove users from a group. ...

Delete a group.

**ANS.33**ext4, XFS, Btrfs, JFS, and ZFS

**ANS.34** All Linux files belong to an owner and a group. When permissions and users are represented by letters, that is called symbolic mode. For users, u stands for user owner, g for group owner, and o for others. For permissions, r stands for read, w for write, and x for execute.

**ANS.35** Click on the Preferences icon right below the password field. A window appears with a list of several different desktop environments. Choose one, and enter password as usual.

**ANS.36** Read, write, and execute.

**ANS.37** The Vi editor has two modes: Command and Insert.

**Modue: 5- Linux server - Deploy, configure, and maintain systems**

**ANS.38** The at command in Linux is used to schedule one-time tasks to be executed at a specified time in the future.

**ANS.39** To update any packages or the entire one, use the command yum update.

To install any application, use the command yum install <App-Name>.

To remove any application, use the command yum remove <App-Name>.

**ANS.40** 3.1. Prerequisites. ...

3.2. Download Apache httpd Source Code. ...

3.3. Extract and Configure the Downloaded Packages. ...

3.4. Set up Apache httpd Server. ...

3.5. Start the Service. ...

3.6. Verify the Installation.

**ANS.41 A** kickstart configuration file contains all the information that kickstart requires to perform an automated installation. Every Oracle Linux installation creates a kickstart file,

**ANS.42** Use the online Kickstart configuration tool. Copy the Kickstart file created as a result of a manual installation. Write the entire Kickstart file manually.

**ANS.43** A kickstart configuration file contains all the information that kickstart requires to perform an automated installation. Every Oracle Linux installation creates a kickstart file,

**ANS.44** Use the ksvalidator command line utility to verify that your Kickstart file is valid

**ANS.45** Start > Control Panel > System and Security > Click Allow a program or feature through Window Firewall in Windows Firewall.

**ANS.46** Reload firewall rules and keep state information.

**ANS.**47 To use new server configuration settings by restarting the HTTP server task, enter tell http restart at the console.

**ANS.48** Create a Kickstart file.

Make the Kickstart file available on removable media, a hard drive or a network location.

Create boot media, which will be used to begin the installation.

Make the installation source available.

**Start the Kickstart installation.**

**Module 6- Linux server - Manage basic networking & Security**

**ANS.49** You can use the ` ifconfig` or ` ip address` show command to display comprehensive information about all network interfaces.

**ANS.50** A ping (Packet Internet or Inter-Network Groper) is a basic Internet program that allows a user to test and verify if a particular destination IP address exists and can accept requests in computer network administration.

**ANS.51** Start Firewalld for the current session: sudo systemctl start firewall.

Enable Firewall to always start at server boot: sudo systemctl enable firewall. ...

Disable Firewall from starting at boot: sudo systemctl disable firewalld.

Check whether Firewall is running: sudo systemctl status firewall.

**ANS.52** Change the SSH port. While logged in as a user with sudo privileges, change your SSH port from the default 22 to a number in [1025, 65536). ...

Create a temporary backdoor. ...

Only allow incoming packets on your SSH port, HTTP (port 80), and NTP (port 123). ...

Enable the firewall.

**ANS.53** SELinux, or Security-Enhanced Linux, is a part of the Linux kernel that acts as a protective agent to the OS. In the Linux kernel, SELinux is a mandatory access controls (MAC) mechanism that restricts programs with rules and policies set by the system administrator.

**ANS.54** Search for settings .

Click on either Network or Wi-Fi tab, depending on the interface you would like to modify.

To open the interface settings, click on the gear icon next to the interface name.

Select “Manual” In the IPV4 tab and enter your static IP address, Netmask and Gateway.

**Module:7- Linux server -deployment of network services**

**ANS.55** GRUB is a new boot loader with multi-OS device management. On the other hand, LILO is an older boot loader with single OS device management. GRUB supports Windows, Linux, UNIX, macOS, BSD, and Solaris. On the other hand, LILO only supports Linux.

**ANS.56** Shut down the device.

Start it again. ...

In the GRUB boot options, scroll down and locate the line that begins with 'linux'. ...

Press Ctrl+x, or F10, to boot.

You will see a root prompt. ...

Set the password of any user(s).

**ANS.57** mkfs command.

**ANS.58** Install or update the quota package: # yum install quota.

Include the user quota or group quota options in the file system's /etc/fstab entry, for example: /dev/sdb1 /home ext4 user quota, grpquota 0 0.

Remount the file system: # mount -o remount /home.

**ANS.59** Use the mount command to mount the partition temporarily**.**

**ANS.60** To manage and monitor software RAID devices.

**ANS.61** Enable HTTPS (SSL) ...

Disable deprecated SSL/TLS protocols, allow TLS v1.2 only. ...

Disable TRACE method. ...

Enable HTTP Strict Transport Security. ...

Hide version information from response. ...

Reduce MIME type security risks. ...

Enable X-XSS-Protection. ...

Configure X-Frame-Options.

**ANS.62** Install any EXE File of Windows that you want to execute on Linux.

Go to the Open With a section of that application.

Now, go for the Wine Application.

**S**elect the Install button to get it on Linux.

**ANS.63** Linux is open-source and free. Windows is a paid operating system. Linux has machine-friendly features and the user must learn to use Linux. Windows uses Graphical User Interface and any non-technical user can use it without getting into tech-knowledge.

**ANS.64** Open source is generally much more cost-effective than a proprietary solution. Not only are open source solutions typically much more inexpensive in an enterprise environment for equivalent or superior capability, but they also give enterprises the ability to start small and scale (more on that coming up).

**ANS.65** Download the installation media in the form of a ZIP file.

Extract the contents of the Apache Web Server 2.4 zip to the file system.

Locate the extracted Apache24 folder and copy this folder to the root of C:\

Open the C:\Apache24\bin folder and run the httpd.exe command.

**ANS.66** Apache Installation. ...

Create the Directory Structure. ...

Grant Permissions. ...

Create Demo Pages for Each Virtual Host. ...

Create New Virtual Host Files. ...

Enable the New Virtual Host Files.

**ANS.67** MariaDB is more scalable and offers a higher query speed when compared to MySQL. This makes it good for managing large-sized data. You will also find more features in MariaDB that MySQL doesn't have, like sequence storage engines and virtual columns. You can also use multiple engines in one table.