# Module 1: Linux Server – Services And Permissions

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

The minimum number of partitions required to install Linux is \*\*two\*\*:  
- Root partition (/) → Contains system files, applications, and configurations.  
- Swap partition → Used as virtual memory to support RAM.  
Optionally, you can also create a separate /home partition to store user data.

## 2. Explain About Chmod Command

The \*\*chmod\*\* (change mode) command in Linux is used to change file and directory permissions. Permissions are divided into three categories: user (u), group (g), and others (o). There are three types of permissions: read (r), write (w), and execute (x).  
  
Examples:  
- chmod 755 file.txt → Assigns read, write, execute for user, and read/execute for group and others.  
- chmod u+x script.sh → Adds execute permission for the user.

## 3. How to check Linux memory utilization

You can check memory utilization using the following commands:  
- free -h → Displays memory usage in human-readable format.  
- top → Shows real-time system processes and memory usage.  
- vmstat → Displays virtual memory statistics.  
- cat /proc/meminfo → Shows detailed memory information.

## 4. Use grep to search for specific patterns in files.

The \*\*grep\*\* command is used to search for specific patterns in files.  
Syntax: grep 'pattern' filename  
  
Example:  
- grep 'root' /etc/passwd → Searches for the word 'root' in the passwd file.

## 5. Get Connecting on a Linux server by ssh

You can connect to a Linux server using \*\*ssh\*\* (Secure Shell):  
Syntax: ssh username@hostname\_or\_IP  
  
Example:  
- ssh user@192.168.1.10 → Connects to the server at IP 192.168.1.10 as 'user'.

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

Steps:  
1. Create files: touch /tmp/file1 /tmp/file2 /tmp/file3 /tmp/file4 /tmp/file5  
2. Create tar archive: tar -cvf files.tar /tmp/file1 /tmp/file2 /tmp/file3 /tmp/file4 /tmp/file5  
3. Compress using gzip: gzip files.tar  
Result: files.tar.gz created containing the five files.

## 7. Describe the root account

The \*\*root account\*\* is the administrative user in Linux with full system privileges. It can perform all tasks including installing software, modifying system files, and managing users. It should be used with caution to avoid accidental system damage.

## 8. What is shell?

A \*\*shell\*\* is a command-line interpreter that provides a user interface to interact with the operating system. It allows users to run commands, scripts, and applications. Examples include Bash, Zsh, and Fish.

## 9. What is Linux?

Linux is an open-source, Unix-like operating system kernel. It powers servers, desktops, mobile devices, and embedded systems. Linux distributions (e.g., Ubuntu, CentOS, Fedora) package the kernel with software to provide a complete OS.

## 10. What is Bash?

Bash (Bourne Again Shell) is a popular Unix shell and command language interpreter. It provides features like command history, scripting, job control, and aliases. It is the default shell in most Linux distributions.

## 11. You have a new empty hard drive that you will use for Linux. What is the first step you use?

The first step is to \*\*partition and format\*\* the hard drive. You can use tools like fdisk, parted, or gparted to create partitions, and mkfs to format them with a filesystem (e.g., ext4).

## 12. Write the Linux command to show the current working directory.

Command: pwd

## 13. Write the Linux command to get help with various options.

Commands:  
- man command\_name → Shows manual page.  
- command --help → Displays help options.

## 14. Write the Linux command to display what all users are currently doing.

Command: w

## 15. Write the Linux command to get information about the operating system.

Commands:  
- uname -a → Shows kernel and OS details.  
- cat /etc/os-release → Shows OS version details.

## 16. Write the Linux command to create a hard link of a file.

Command: ln source\_file hardlink\_name

## 17. Write the Linux command to create a soft link of a file as well as Directory.

Commands:  
- For file: ln -s source\_file symlink\_name  
- For directory: ln -s source\_directory symlink\_directory

## 18. Write the Linux command to search for specific pattern in a file.

Command: grep 'pattern' filename

## 19. Write the Linux command

This question seems incomplete, but an example command could be: ls → Lists files and directories.