1. Minimum Number of Partitions to Install Linux
Ans:You need at least two partitions to install Linux: one for the root file system (`/`) and one for swap space.

2. Explain About Chmod Command
Ans:The `chmod` command in Linux is used to change the file access permissions for the owner, group, and others. Permissions include read (`r`), write (`w`), and execute (`x`).

3. How to Check Linux Memory Utilization
Ans:You can check memory utilization using the `free -h` command, which shows memory usage in a human-readable format, or by examining the contents of `/proc/meminfo`.

4. Describe the Root Account
Ans:The root account is the superuser account in Linux, with unrestricted access to all commands, files, and resources on the system. It is used for system administration tasks.

5. What is Shell?
Ans:A shell is a command-line interface that allows users to interact with the operating system by typing commands. It interprets and executes the commands entered by the user.

6. What is Linux?
Ans:Linux is an open-source, Unix-like operating system kernel. It is the core component of various distributions (distros) like Ubuntu, CentOS, and Debian, providing a platform for applications to run.

7. What is Bash?
Ans:Bash (Bourne Again Shell) is a widely-used Unix shell and command language. It is the default shell on many Linux distributions and macOS.

8. How Can You Find Out How Much Memory Linux is Using?
Ans:Use the `free` command, `top`, or `htop` to find out how much memory Linux is using. Additionally, you can look at `/proc/meminfo`.

9. Typical Size for a Swap Partition Under a Linux System
Ans:The typical size for a swap partition is generally recommended to be equal to the amount of RAM, though it can be more or less depending on system usage. For systems with large amounts of RAM, 4 GB or 8 GB is common.

10. How to Switch from One Desktop Environment to Another
Ans:You can switch desktop environments by installing the desired environment (e.g., `sudo apt install gnome`) and selecting it at the login screen. Logout and then choose the new environment from the session menu.

11. Kinds of Permissions Under Linux

Ans:Permissions in Linux are divided into read (`r`), write (`w`), and execute (`x`) and can be set for the file owner, group, and others.

12. Different Modes When Using vi Editor
The vi editor operates mainly in three modes: Normal mode (default), Insert mode (for text entry), and Command mode (for saving, quitting, and other commands).

13. How to Run Windows Software on Linux Operating System
Ans:You can run Windows software on Linux using compatibility layers like Wine or virtualization solutions like VirtualBox or VMware.

14. Difference Between Windows and Linux
Ans:- **Source**: Windows is proprietary software, while Linux is open-source.
Cost: Windows usually requires a license fee, whereas Linux is free.
Customization: Linux is highly customizable, whereas Windows is less so.
Software Compatibility: Windows has broader software and game compatibility, while Linux excels in server environments and development.

15. Advantage of Open Source
Ans:Open source provides transparency, security (through community scrutiny), flexibility, and cost savings. It allows anyone to view, modify, and distribute the code.

16. Explain File Permission Groups in Linux
Ans:In Linux, file permissions are grouped into three categories: owner (user who owns the file), group (users who are part of the file's group), and others (all other users).

17. Different File System Types in Linux
Ans:Common Linux file system types include:
ext4: Most common default file system.
XFS: High-performance journaling file system.
btrfs: Modern file system with advanced features.
FAT32/exFAT/NTFS: For compatibility with Windows systems.

18. Why LVM is Required
Ans:LVM (Logical Volume Manager) provides flexible disk management, allowing resizing of disk partitions and combining multiple physical disks into a single logical volume.

19. How to Exit from vi Editor
Ans: Press `Esc` to enter Command mode.
Type `:wq` and press Enter to save and exit.
Type `:q!` and press Enter to exit without saving.

20. How to Delete Information from a File in vi
Ans:- Navigate to the text you want to delete.

In Normal mode, use commands like `dd` to delete a line or `d` followed by a movement command (e.g., `dw` to delete a word).
21. You have a new,
empty hard drive that you will use for Linux. What is the first step you use.
Ans: First step with a new, empty hard drive for Linux: Partition the hard drive using a tool like “fdisk” or “ parted.”
22. Write the Linux command to show the current working directory.
Ans:”pwd”
23. write the Linux command to get help with various options.
Ans:man <command>
24. Write the linux comman! to display what all users are currently doing.
Ans:w
25. write the Linux command to get information about the operating system.
Ans:uname -a
26. Write the Linux command to create a hard link of a file
Ans:ln <source_file> <target_file>
27. Write the Linux command to create a soft link of a file as well as Directory.
Ans: **for file** :ln -s <source_file> <target_file>
For Directoryln: -s <source_directory> <target_directory>
28. Write the Linux command! to search for specific pattern in a file.
Ans:grep 'pattern' <file>
29. Write the Linux command to show the use of basic regular expressions using grep command.
Ans:grep '^pattern' <file> # Matches lines starting with 'pattern'
grep 'pattern$' <file> # Matches lines ending with 'pattern’
30. What is the maximum file size on the ext4 file system?
Ans:16 TiB (Tebibytes)
31. What is the maximum file size on the xfs file system?
Ans:8 EiB (Exbibytes)
32. What is Difference between LILO And GRUB?
Ans:**LILO (Linux Loader**):
Older boot loader.
Requires reinstallation when configuration changes.
Limited to x86 architecture.
GRUB (GRand Unified Bootloader):
More modern and flexible.
Doesn't require reinstallation after configuration changes.
Supports multiple operating systems and architectures.
33. How to Recover Linux Password ?
Ans:Boot into single-user mode or use a live CD.
Mount the root filesystem.
Use the “passwd” command to reset the password.
34. Which command use for format partition in Linux OS?
Ans:mkfs.<filesystem_type> /dev/<partition>

35. How to enable “quota” in Linux ?
Ans:Edit /etc/fstab to include usrquota and/or grpquota options.
Remount the filesystem.
Use quotacheck, quotaon, and set quotas with edquota.
36. How to Mount Partition in Linux ?
Ans:mount /dev/<partition> /mnt/<mount_point>
37. What is use of “mdadm” Command ?
Ans: “mdadm” is used to manage and monitor Linux software RAID arrays.
38. How to configure secure Apache web server in Linux ?
Ans:Install Apache.
Enable and configure SSL with “mod_ssl”
Obtain and configure an SSL certificate.
Configure firewall rules to allow HTTPS traffic.
Harden Apache configuration for security.
39. How to Set Static IP in Linux?
Ans:Edit the network configuration file (/etc/network/interfaces for Debian-based or /etc/sysconfig/network-scripts/ifcfg-<interface> for Red Hat-based).
Restart the network service
40. What is selinux Security?
Ans:SELinux (Security-Enhanced Linux) provides mandatory access control (MAC) to enhance system security by enforcing policies that restrict user and program capabilities.