Linux Interview Questions and Answers

1. What is the difference between `rpm` and `yum` in Linux?

Answer: `rpm` stands for Red Hat Package Manager, used to install, upgrade, or remove software packages but does not automatically resolve dependencies. `yum` is a higher-level package manager that resolves dependencies and installs packages.

2. Explain the role of the kernel in Linux.

Answer: The Linux kernel is the core part of the operating system that manages hardware resources, system processes, memory, input/output operations, and the file system.

3. What are the different types of file systems in Linux?

Answer: Common file systems in Linux include ext4, XFS, Btrfs, NFS, FAT32, and NTFS.

4. How do you change file permissions in Linux?

Answer: You can change file permissions using the `chmod` command. Example: `chmod 755 file.txt` gives specific read, write, and execute permissions.

5. What is the purpose of the `grep` command?

Answer: `grep` is used to search for patterns in files. Example: `grep 'pattern' file.txt` searches for the string 'pattern' in `file.txt`.

6. What is the `ps` command used for in Linux?

Answer: The `ps` command displays information about running processes. Example: `ps aux` lists all running processes.

7. What is a symbolic link in Linux? How do you create one?

Answer: A symbolic link is a file that points to another file or directory. Create one with `ln -s /path/to/target /path/to/symlink`.

8. What is `top` command in Linux?

Answer: `top` provides real-time system performance statistics, including CPU and memory usage

and active processes.

9. What is the difference between `init` and `systemd`?

Answer: `init` is the traditional initialization system in Linux, while `systemd` is a modern service manager and init system used in newer distributions.

10. What is the difference between `df` and `du` commands in Linux?

Answer: `df` shows the disk space usage of file systems, while `du` shows the disk usage of files and directories.

11. What is the significance of the `/etc/passwd` file in Linux?

Answer: `/etc/passwd` stores user account information such as username, UID, GID, home directory, and default shell.

12. What is `tar` in Linux? How does it work?

Answer: `tar` is a tool used to create or extract archives. Example: `tar -cvf archive_name.tar /path/to/files` to create an archive.

13. What is the difference between `ifconfig` and `ip` commands?

Answer: `ifconfig` is the older network configuration tool, whereas `ip` is the newer and more powerful tool used for managing network interfaces and IP addresses.

14. Explain how Linux handles memory management.

Answer: Linux uses virtual memory, utilizing RAM and swap space to manage memory. The system moves data from RAM to swap when memory is full.

15. What is `LVM` and why is it used?

Answer: `LVM` (Logical Volume Manager) allows for flexible disk management. It provides dynamic volume management, such as resizing and creating snapshots.

16. What are namespaces in Linux?

Answer: Linux namespaces isolate resources such as processes, networks, and file systems, creating separate environments for different processes.

17. What is the difference between `hard link` and `symbolic link`?

Answer: A hard link is an additional directory entry for a file, while a symbolic link is a reference to another file or directory.

18. What is the purpose of `chmod` and `chown` commands?

Answer: `chmod` changes file permissions, and `chown` changes file ownership.

19. What is a `kernel panic` in Linux?

Answer: A kernel panic occurs when the Linux kernel encounters an unrecoverable error, often due to hardware issues or critical software failures.

20. What is the difference between `ps aux` and `top` command in Linux?

Answer: `ps aux` displays a snapshot of running processes, while `top` provides a real-time, dynamic view of system performance.

21. How do you create a new user in Linux?

Answer: You can create a new user using the `useradd` command. Example: `sudo useradd -m -s /bin/bash <username>`

22. What are the different types of runlevels in Linux?

Answer: Runlevels represent system states. Common runlevels include 0 (halt), 1 (single-user mode), 3 (multi-user without GUI), and 5 (multi-user with GUI).

23. What is `sysctl` in Linux?

Answer: `sysctl` is used to configure kernel parameters at runtime. Example: `sysctl -w net.ipv4.ip_forward=1` enables IP forwarding.

24. What is the significance of `/etc/fstab` file in Linux?

Answer: The `/etc/fstab` file defines file systems and their mount points, including which file systems are mounted at boot.

25. What is the purpose of `awk` in Linux?

Answer: `awk` is a text-processing tool used for pattern scanning and processing. Example: `awk

'{print $1}' file.txt` prints the first field of each line.

26. What is the difference between `init` and `systemd`?

Answer: `init` is the traditional initialization system, while `systemd` is a modern init system and service manager used in recent distributions.

27. How do you monitor system performance in Linux?

Answer: You can use tools like `top`, `htop`, `vmstat`, `iostat`, and `sar` to monitor CPU, memory, and I/O statistics.

28. How do you troubleshoot a service that is not starting on a Linux server?

Answer: Check the service status with `systemctl status <service_name>`, view logs with `journalctl`, and check configuration files for errors.

29. What is `firewalld` and how do you use it?

Answer: `firewalld` is a front-end management tool for `iptables` in Linux. It allows you to configure firewall rules and zones.

30. What is the role of `cron` in Linux?

Answer: `cron` is a job scheduler in Linux that allows tasks to be run automatically at specified times.

31. What is the significance of the `/etc/passwd` file in Linux?

Answer: `/etc/passwd` contains user account details like UID, GID, home directory, and shell.

32. What is a firewall in Linux, and how do you configure it?

Answer: A firewall is used to block or allow network traffic. You can configure it using `iptables` or `firewalld`.

33. What is a process in Linux?

Answer: A process is an instance of a running program, and it can be managed using commands like `ps`, `kill`, and `top`.

34. How do you monitor network traffic in Linux?

Answer: Use tools like `netstat`, `ifstat`, `iftop`, and `tcpdump` to monitor network traffic and connections.

35. What are `wildcards` in Linux? Provide examples.

Answer: Wildcards are special characters used for pattern matching. `*` matches any number of characters, `?` matches one character, and `[]` matches a specific set of characters.