Here’s an extended set of **Linux interview questions and answers**, covering basic, intermediate, and advanced topics:

**Basic Linux Questions**

**Q1:** What is the Linux kernel?  
**A:** The Linux kernel is the core of the Linux operating system. It manages hardware resources (CPU, memory, devices) and provides essential services to user applications. It acts as a bridge between the hardware and software layers.

**Q2:** What are some common Linux distributions?  
**A:** Popular Linux distributions include:

* **Debian-based**: Ubuntu, Linux Mint
* **Red Hat-based**: RHEL, CentOS, Fedora
* **Others**: Arch Linux, SUSE, Manjaro

**Q3:** What is the difference between Linux and Unix?  
**A:**

* **Linux**: Open-source, widely used on servers, desktops, and embedded systems.
* **Unix**: Proprietary, primarily used in enterprise environments. Examples include AIX, Solaris.

**Q4:** How do you check the current Linux kernel version?  
**A:**

uname -r

**Q5:** How do you find the IP address of a Linux system?  
**A:**

1. Using ip command:
2. ip addr show
3. Using ifconfig (older tool, may require installation):
4. ifconfig

**Intermediate Linux Questions**

**Q6:** How do you manage services in Linux?  
**A:** Use systemctl for managing services:

* Start a service:
* sudo systemctl start <service\_name>
* Stop a service:
* sudo systemctl stop <service\_name>
* Check the status:
* sudo systemctl status <service\_name>

**Q7:** How do you find a specific file in Linux?  
**A:**

1. Using find:
2. find /path/to/search -name "filename"
3. Using locate:
4. locate filename

*(Ensure locate is installed and database is updated using updatedb.)*

**Q8:** How do you check disk usage in Linux?  
**A:**

1. To view disk space usage:
2. df -h
3. To view directory size:
4. du -sh /path/to/directory

**Q9:** How do you manage file permissions in Linux?  
**A:** Use chmod to modify permissions:

* Grant read, write, and execute:
* chmod 755 filename
* Numeric representation of permissions:
  + 7: Read, write, execute
  + 6: Read, write
  + 5: Read, execute
  + 4: Read

**Q10:** What is the difference between cron and at?  
**A:**

* **cron**: Used for scheduling recurring tasks.
* **at**: Used for scheduling one-time tasks.

Example for cron:

# Open crontab

crontab -e

# Add a task to run every day at midnight

0 0 \* \* \* /path/to/command

Example for at:

# Schedule a task for 2 PM today

echo "/path/to/command" | at 2:00 PM

**Advanced Linux Questions**

**Q11:** How do you troubleshoot high CPU or memory usage in Linux?  
**A:**

1. Use top or htop to monitor processes in real-time.
2. Use ps to check specific process details:
3. ps aux --sort=-%cpu | head
4. Use vmstat for system performance:
5. vmstat 1 5
6. Check logs in /var/log/ for application-specific issues.

**Q12:** How do you secure a Linux system?  
**A:**

1. **Regular updates**:
2. sudo apt update && sudo apt upgrade
3. **Firewall**: Use ufw or iptables to manage firewall rules.
4. sudo ufw enable
5. sudo ufw allow ssh
6. **Disable root login** over SSH.
7. **Set strong passwords** and enforce policies using passwd or chage.
8. Install **Fail2Ban** to prevent brute-force attacks.

**Q13:** How do you manage user accounts in Linux?  
**A:**

1. Add a user:
2. sudo adduser username
3. Delete a user:
4. sudo deluser username
5. Change a user’s password:
6. sudo passwd username

**Q14:** How do you compress and extract files in Linux?  
**A:**

1. Compress using tar and gzip:
2. tar -czvf archive.tar.gz /path/to/directory
3. Extract:
4. tar -xzvf archive.tar.gz

**Q15:** What is a symbolic link, and how do you create one?  
**A:** A symbolic link (symlink) is a pointer to another file or directory.  
Create a symlink:

ln -s /path/to/original /path/to/symlink

**Linux Networking Questions**

**Q16:** How do you test network connectivity in Linux?  
**A:**

1. Ping a host:
2. ping -c 4 example.com
3. Check open ports using netstat or ss:
4. ss -tuln
5. Use curl or wget to check web server responses:
6. curl -I http://example.com

**Q17:** How do you set up an SSH key-based login?  
**A:**

1. Generate an SSH key pair:
2. ssh-keygen -t rsa -b 4096
3. Copy the public key to the remote server:
4. ssh-copy-id user@remote-server
5. Verify login:
6. ssh user@remote-server

**Practical Challenges**

**Q18:** Write a shell command to find and delete files larger than 100MB in /tmp.  
**A:**

find /tmp -type f -size +100M -exec rm -f {} \;

**Q19:** How do you view the system boot log?  
**A:**

dmesg | less

**Q20:** How do you check the current load average?  
**A:** Use the uptime or top command:

uptime

Output example:

15:40:11 up 10 days, 3:21, 3 users, load average: 0.10, 0.25, 0.30

The numbers represent load averages over 1, 5, and 15 minutes.

These questions cover various aspects of Linux, from basic administration to advanced system-level tasks. Let me know if you'd like more examples or deeper explanations!

You can check CPU, memory, and disk usage on a Linux system using several commands. Here’s a comprehensive guide:

**1. Check CPU Usage**

**Command 1: top**  
Displays real-time CPU usage along with processes:

top

* Key fields to look at:
  + %Cpu(s): Overall CPU usage.
  + PID: Process ID consuming CPU.

**Command 2: htop** (if installed)  
An enhanced version of top with a better user interface:

htop

* Use arrow keys to navigate and F3 to search for processes.

**Command 3: mpstat** (if installed)  
Gives detailed CPU usage statistics:

mpstat -P ALL

* Install with:
* sudo apt install sysstat # On Debian-based systems

**Command 4: sar**  
Monitors CPU usage over time:

sar -u 1 5

* Install with:
* sudo apt install sysstat

**2. Check Memory Usage**

**Command 1: free**  
Displays memory usage summary:

free -h

* Fields:
  + **Used**: Memory currently in use.
  + **Free**: Memory available.
  + **Available**: Memory available for new processes.

**Command 2: vmstat**  
Provides memory, swap, and CPU details:

vmstat 1 5

* Install with:
* sudo apt install procps

**Command 3: /proc/meminfo**  
Detailed memory information:

cat /proc/meminfo

* Look at fields like MemTotal, MemFree, and Buffers.

**Command 4: top or htop**  
Also displays memory usage in addition to CPU usage.

**3. Check Disk Usage**

**Command 1: df**  
Displays disk space usage for file systems:

df -h

* Flags:
  + -h: Human-readable format.
  + -T: Includes file system type.

**Command 2: du**  
Checks disk usage for files and directories:

du -sh /path/to/directory

* Flags:
  + -s: Summarizes the usage for the directory.
  + -h: Human-readable format.

**Command 3: lsblk**  
Lists all block devices and their usage:

lsblk

**Command 4: iostat** (if installed)  
Provides detailed I/O statistics for disks:

iostat -dx

* Install with:
* sudo apt install sysstat

**Command 5: ncdu** (if installed)  
Interactive disk usage analyzer:

ncdu

* Install with:
* sudo apt install ncdu

**4. Combined System Monitoring Tools**

**Command 1: glances**  
Provides a unified view of CPU, memory, and disk usage:

glances

* Install with:
* sudo apt install glances

**Command 2: dstat**  
Displays real-time system resource usage:

dstat

* Install with:
* sudo apt install dstat

**Summary Commands**

* **CPU**: top, htop, mpstat
* **Memory**: free -h, vmstat, top
* **Disk**: df -h, du -sh, lsblk
* **Combined**: glances, dstat

These commands should help you monitor and manage system resources effectively. Let me know if you'd like detailed examples for any!