1. What is Linux?

Linux is an Open-Source Operating System based on Unix. Linux was first introduced by Linus Torvalds. The main purpose of Linux was to provide free and low-cost Operating Systems for users who could not afford Operating Systems like Windows or iOS or Unix.

2. What is the Linux Kernel? Is it legal to edit Linux Kernel?

Linux kernel refers to the low-level system software. It is used to manage resources and provide an interface for user interaction.

Yes, it is legal to edit Linux Kernel. Linux is released under the General Public License (General Public License). Any project released under GPL can be modified and edited by the end-users.

3. Which are the Shells used in Linux?

The most common Shells used in Linux are:
- **bash**: Bourne Again Shell is the default for most of the Linux distributions
- **ksh**: Korn Shell is a high-level programming language shell
- **csh**: C Shell follows C like syntax and provides spelling correction and Job Control
- **zsh**: Z Shell provides some unique features such as filename generation, startup files, login/logout watching, closing comments etc.
- **fish**: Friendly Interactive Shell provides some special features like web-based configuration, auto-suggestions, fully scriptable with clean scripts

4. Explain file permission in Linux.

There are 3 kinds of permission in Linux:

- **Read**: Allows a user to open and read the file
- **Write**: Allows a user to open and modify the file
- **Execute**: Allows a user to run the file.

You can change the permission of a file or a directory using the **chmod** command.

5. Which are the Linux Directory Commands?

There are 5 main Directory Commands in Linux:
- **pwd**: Displays the path of the present working directory.
- **ls**: Lists all the files and directories in the present working directory.
- **cd**: Used to change the present working directory.
- **mkdir**: Creates a new directory
- **rmdir**: Deletes a directory

6. Explain grep command.

Grep stands for **Global Regular Expression Print**. The grep command is used to search for a text in a file by pattern matching based on a regular expression.

Syntax: *grep [options] pattern [files]*

Example:

> *$ grep -c "linux" interview.txt*

This command will print the count of the word "linux" in the "interview.txt" file.

7. Explain the redirection operator.

The redirection operator is used to redirect the output of a particular command as an input to another command or file. There are two ways of using this:
- '>' **overwrites** the existing content of the file or creates a new file.
- '>>' **appends** the new content to the end of the file or creates a new file.

8. Why is the tar command used?

The tar command is used to extract or create an archived file.

Suppose you want to extract all the files from the archive named sample.tar.gz, then the command will be:

> *$ tar -xvzf sample.tar.gz*

Suppose you want to create an archive of all the files stored in the path /home/linux/, then the command will be:

> *$ tar -cvzf filename.tar.gz*

where c: create archive, x: extract, v: verbose, f: file

9. How to copy a file in Linux?

You can use the cp command to copy a file in Linux. The general syntax is:

> $ cp <source> <destination>

Suppose you want to copy a file named questions.txt from the directory /new/linux to /linux/interview, then the command will be:

> $ cp questions.txt /new/linux /linux/interview

10. Write a bash script to delete all the files in the current directory that contains the word "linux".

> for i in *linux*; do rm $i; done

11. How would you create a text file without opening it?

The **touch** command can be used to create a text file without opening it. The **touch** command will create an empty file. The syntax is as follows:

> $ touch <filename>

Suppose you want to create a file named sample.txt, then the command would be:

    $ touch sample.txt

12. How would you search for a specific Employee ID in a file using the vim editor?

$ vim +/<employee id to be searched> <filename>

13. Enlist some Linux networking and troubleshooting commands?

Every computer is connected to the network internally or externally for the purpose of exchanging information. Network troubleshooting and configuration are essential parts of and network administration. The networking commands enable you to quickly troubleshoot connection issues with another system, check the response of another host, etc.

Mentioned below are few commands along with their description

- **Hostname**: To view the hostname (domain and IP address) of the machine and to set the hostname.
- **Ping**: To check if the remote server is reachable or not.
- **ifconfig**: To display and manipulate route and network interfaces. It displays network configuration. 'ip' is the replacement of ifconfig command.
- **netstat**: It displays network connections, routing tables, interface statistics. 'ss' is the replacement of netstat command which is used to get more information.
- **Traceroute**: It is a network troubleshooting utility that is used to find the number of hops required for a particular packet to reach the destination.
- **Tracepath**: It is the same as traceroute with a difference that it does not require root privileges.
- **Dig**: This command is used to query the DNS name servers for any task related to the DNS lookup.
- **nslookup**: To find DNS related query.
- **Route**: It shows the details of the route table and manipulates the IP routing table.
- **mtr**: This command combines ping and track path into a single command.

14. Which command would you use if you want to remove the password assigned to a group?

The **gpasswd – r** removes the password assigned to a group.

15. Explain File Permission groups in Linux?

There are three user based permission groups for each file and directory. They are:
- **Owner**: Owners only will have to access the file or directory, they will not impact the actions of other users.
- **Group**: These permissions apply only to the group, that has been assigned to the file or directory. They will not impact the actions of other users.
- **All Users**: These permissions are applied to all users on the system.