1. What are inode and process id?

**inode** is the unique name given by the operating system to each file. Similarly, **process id** is the unique id given to each process.

1. Which are the Linux Directory Commands?

There are 5 main Directory Commands in Linux:

* 1. **pwd**: Displays the path of the present working directory.

Syntax: $ pwd

* 1. **ls**: Lists all the files and directories in the present working directory.

Syntax: $ ls

* 1. **cd**: Used to change the present working directory.

Syntax: $ cd <path to new directory>

* 1. **mkdir**: Creates a new directory

Syntax: $ mkdir <name (and path if required) of new directory>

* 1. **rmdir**: Deletes a directory

Syntax: $ rmdir <name (and path if required) of directory>

1. What is Virtual Desktop?

Virtual Desktop is a feature that allows users to use the desktop beyond the physical limits of the screen. Basically, Virtual Desktop creates a virtual screen to expand the limitation of the normal screen.

There are two ways Virtual Desktop can be implemented:

1. Switching Desktops
2. Oversized Desktops
3. **Switching Desktops**

In the case of Switching Desktops, we can create discrete virtual desktops to run programs. Here, each virtual desktop will behave as an individual desktop and the programs running on each of these desktops is accessible only to the users who are using that particular desktop.

1. **Oversized Desktops**

Oversized Desktops do not offer a discrete virtual desktop but it allows the user to pan and scroll around the desktop that is larger in size than the physical screen.

1. Which are the different modes of vi editor?

There are three different modes of vi editor:

1. **Command Mode:** When vi starts up, it is in Command Mode. This mode is where vi interprets any characters we type as commands and thus does not display them in the window. This mode allows us to move through a file, and to delete, copy, or paste a piece of text.  
   To enter into Command Mode from any other mode, it requires pressing the [Esc] key. If we press [Esc] when we are already in Command Mode, then vi will beep or flash the screen.
2. **Insert mode:** This mode enables us to insert text into the file. Everything that’s typed in this mode is interpreted as input and finally, it is put in the file. The vi always starts in command mode. To enter text, we must be in insert mode. To come in insert mode, we simply type i. To get out of insert mode, press the Esc key, which will put us back into command mode.
3. **Last Line Mode (Escape Mode):** Line Mode is invoked by typing a colon [:], while vi is in Command Mode. The cursor will jump to the last line of the screen and vi will wait for a command. This mode enables us to perform tasks such as saving files, executing commands.
4. What are daemons?

A daemon is a computer program that runs as a background process to provide functions that might not be available in the base Operating System. Daemons are usually used to run services in the background without directly being in control of interactive users. The purpose of Daemons are to handle periodic requests and then forward the requests to appropriate programs for execution.

1. What are the process states in Linux?

The process states are as follows:

* **Ready**: The process is created and is ready to run
* **Running**: The process is being executed
* **Blocked or wait**: Process is waiting for input from the user
* **Terminated or Completed**: Process completed execution, or was terminated by the Operating System
* **Zombie**: Process terminated, but the information still exists in the process table.

1. Explain grep command.

Grep (Global regular expression print) command is the most powerful and regularly used Linux command-line utility. Using Grep, we can search for useful information by specifying a search criterion. It searches for a particular expression pattern in a specified file. When it finds a match, it prints all the lines of a file that matched the specified pattern.

**Example**: Search any line that contains the word in filename on Linux:  
grep 'word' filename.txt

1. Explain Process Management System Calls in Linux

System call provides an interface between user program and operating system.

Process management system calls in Linux.

* fork − For creating a duplicate process from the parent process.
* wait − Processes are supposed to wait for other processes to complete their work.
* exec − Loads the selected program into the memory.
* exit − Terminates the process.

1. Explain the ‘ls’ command

The ls command is used to list the files in a specified directory. The general syntax is:

**$ ls <options> <directory>**

For example, if we want to list all the files in the Example directory, then the command will be as follows:

**$ ls Example/**

There are different options that can be used with the ls command. These options give additional information about the file/ folder.

For example:

|  |  |
| --- | --- |
| -l | List long format(shows the permission of the file) |
| -a | lists all files including hidden files |
| -i | lists files with their inode number |
| -s | lists files with their size |
| -S | lists files with their size and sorts the list by file size |
| -t | sorts the listed files by time and date |

1. 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.