1. What is a shell in Linux OS? How many categories of shell currently exist in Linux? Why is the bash shell very popular in Linux distribution?
•A shell is basically the interface that lets you talk to the Linux operating system through commands. Imagine it as the helpful assistant that takes what you type and tells the system what to do. There are several types of shells like Bourne shell (sh), C shell (csh), Korn shell (ksh), and Bash (bash). Bash is the most popular because it's user-friendly, powerful, and includes modern features like command history and tab completion, making working in Linux smoother for everyone.

2.What does the ls -Z command display?
•When you run ls -Z , it shows you special security labels on files if your system uses SELinux. This helps see the security context, which decides who can access what on your system.

3.Write a command to list all hidden files in the current directory.
•To see hidden files, which usually start with a dot, type ls -ld .* . This lists those files with detailed info.

4.Explain the difference between hard links and soft links (symbolic links) in Linux.
•Hard links are like different names pointing to the exact same file content on disk. Remove one name, and the file still exists through other names. Soft links are like shortcuts pointing to the file name; if the original moves or is deleted, the shortcut breaks.

5.A file has permissions -rwxr-x–x. Explain who can read, write, and execute it.
•The owner can read, write, and execute the file. The group can read and execute but cannot modify it. Others can only execute the file — no reading or writing.

6.Write the command to change the group ownership of a file data.txt to group staff.
•To change the group of data.txt to "staff," use: chgrp staff data.txt

7. Why is it dangerous to give 777 permissions to a file? Explain with an example.
•Giving 777 permissions means anyone can read, write, and run the file. This is risky because someone might accidentally or intentionally change or run harmful code. For example, a public script on a server can be altered by any user if it has 777 permissions, potentially causing damage.

8.What is the difference between apropos (man -k) and whatis (man -f)?
• apropos searches the manual descriptions for a keyword and lists many related commands with brief descriptions. whatis gives you a quick one-line description for a specific command.

9.Write a command to redirect the error output of a command to a file named error.log.
•If you want to save only the error messages from a command to a file, use: command_name 2> error.log

10.How can you use the tee command to append output to a file instead of overwriting it?
•Normally, tee overwrites the file. To add output at the end without erasing existing content, use: command | tee -a filename