**Linux Basics**

Sure, let's create some questions based on the provided information:

### SSH Configuration:

1. \*\*Question:\*\*

How can you \*\*activate\*\* SSH on a machine?

- A) `sudo rm -f /etc/ssh/sshd\_not\_to\_be\_run`

- B) `sudo systemctl enable ssh`

- C) `sudo systemctl start ssh`

- D) All of the above

- \*\*Answer:\*\* D

2. \*\*Question:\*\*

How do you \*\*deactivate\*\* SSH on a machine?

- A) `sudo systemctl stop ssh`

- B) `sudo systemctl disable ssh`

- C) `sudo rm -f /etc/ssh/sshd\_not\_to\_be\_run`

- D) Both A and B

- \*\*Answer:\*\* D

3. \*\*Question:\*\*

To \*\*enable/disable password authentication\*\* in SSH, what file do you need to edit?

- A) `/etc/ssh/sshd\_config`

- B) `/etc/ssh/ssh\_config`

- C) `/etc/ssh/auth\_config`

- D) `/etc/ssh/password\_config`

- \*\*Answer:\*\* A

4. \*\*Question:\*\*

What command is used to \*\*reload SSH service\*\* after modifying the configuration?

- A) `sudo service ssh restart`

- B) `sudo systemctl reload ssh`

- C) `systemctl restart ssh`

- D) `service ssh reload`

- \*\*Answer:\*\* B

5. \*\*Question:\*\*

How do you \*\*setup public/private key authentication\*\* for a user in SSH?

- A) `ssh-keygen`

- B) `scp <filename> username@remote\_server:./ssh/authorized\_keys`

- C) Both A and B

- D) None of the above

- \*\*Answer:\*\* C

### File and Directory Operations:

6. \*\*Question:\*\*

How do you \*\*delete files older than a certain time\*\* using the `find` command?

- A) `find ./files/ -mtime +30 -name '\*.pdf' -exec rm -rf {} \;`

- B) `find /directory/ -type f -not -name '\*.zip' -delete`

- C) Both A and B

- D) `find -newerct "1 Apr 2021" ! -newerct "16 Apr 2021" -ls | sort`

- \*\*Answer:\*\* A

7. \*\*Question:\*\*

What command is used to view file permissions in octal for a directory?

- A) `ls -l --block-size=M`

- B) `du -sh`

- C) `stat -c "%a %n" dir`

- D) `df -h`

- \*\*Answer:\*\* C

### Bash Scripting:

8. \*\*Question:\*\*

What is the purpose of the line `#! /bin/bash` in a Bash script?

- A) It is a comment in the script.

- B) It sets the shell to execute the script with `/bin/bash`.

- C) It is a placeholder for the script name.

- D) It specifies the script version.

- \*\*Answer:\*\* B

9. \*\*Question:\*\*

How do you make a Bash script executable?

- A) `chmod u+x <script\_file\_name>.sh`

- B) `chmod +rwx <script\_file\_name>.sh`

- C) `chmod 777 <script\_file\_name>.sh`

- D) Both A and C

- \*\*Answer:\*\* A

10. \*\*Question:\*\*

What does the command `ls -l > output\_to\_a\_file.txt` do?

- A) Redirects standard output to a file, overwriting its content.

- B) Creates a symbolic link to `output\_to\_a\_file.txt`.

- C) Appends the output of `ls -l` to `output\_to\_a\_file.txt`.

- D) Lists files and directories in long format.

- \*\*Answer:\*\* A

Let's review the questions and answers:

### SSH Configuration:

1. \*\*Question:\*\*

How can you \*\*activate\*\* SSH on a machine?

- A) `sudo rm -f /etc/ssh/sshd\_not\_to\_be\_run`

- B) `sudo systemctl enable ssh`

- C) `sudo systemctl start ssh`

- D) All of the above

- \*\*Answer:\*\* D (Correct)

2. \*\*Question:\*\*

How do you \*\*deactivate\*\* SSH on a machine?

- A) `sudo systemctl stop ssh`

- B) `sudo systemctl disable ssh`

- C) `sudo rm -f /etc/ssh/sshd\_not\_to\_be\_run`

- D) Both A and B

- \*\*Answer:\*\* D (Correct)

3. \*\*Question:\*\*

To \*\*enable/disable password authentication\*\* in SSH, what file do you need to edit?

- A) `/etc/ssh/sshd\_config`

- B) `/etc/ssh/ssh\_config`

- C) `/etc/ssh/auth\_config`

- D) `/etc/ssh/password\_config`

- \*\*Answer:\*\* A (Correct)

4. \*\*Question:\*\*

What command is used to \*\*reload SSH service\*\* after modifying the configuration?

- A) `sudo service ssh restart`

- B) `sudo systemctl reload ssh`

- C) `systemctl restart ssh`

- D) `service ssh reload`

- \*\*Answer:\*\* B (Correct)

5. \*\*Question:\*\*

How do you \*\*setup public/private key authentication\*\* for a user in SSH?

- A) `ssh-keygen`

- B) `scp <filename> username@remote\_server:./ssh/authorized\_keys`

- C) Both A and B

- D) None of the above

- \*\*Answer:\*\* C (Correct)

### File and Directory Operations:

6. \*\*Question:\*\*

How do you \*\*delete files older than a certain time\*\* using the `find` command?

- A) `find ./files/ -mtime +30 -name '\*.pdf' -exec rm -rf {} \;`

- B) `find /directory/ -type f -not -name '\*.zip' -delete`

- C) Both A and B

- D) `find -newerct "1 Apr 2021" ! -newerct "16 Apr 2021" -ls | sort`

- \*\*Answer:\*\* A (Correct)

7. \*\*Question:\*\*

What command is used to view file permissions in octal for a directory?

- A) `ls -l --block-size=M`

- B) `du -sh`

- C) `stat -c "%a %n" dir`

- D) `df -h`

- \*\*Answer:\*\* C (Correct)

### Bash Scripting:

8. \*\*Question:\*\*

What is the purpose of the line `#! /bin/bash` in a Bash script?

- A) It is a comment in the script.

- B) It sets the shell to execute the script with `/bin/bash`.

- C) It is a placeholder for the script name.

- D) It specifies the script version.

- \*\*Answer:\*\* B (Correct)

9. \*\*Question:\*\*

How do you make a Bash script executable?

- A) `chmod u+x <script\_file\_name>.sh`

- B) `chmod +rwx <script\_file\_name>.sh`

- C) `chmod 777 <script\_file\_name>.sh`

- D) Both A and C

- \*\*Answer:\*\* A (Correct)

10. \*\*Question:\*\*

What does the command `ls -l > output\_to\_a\_file.txt` do?

- A) Redirects standard output to a file, overwriting its content.

- B) Creates a symbolic link to `output\_to\_a\_file.txt`.

- C) Appends the output of `ls -l` to `output\_to\_a\_file.txt`.

- D) Lists files and directories in long format.

- \*\*Answer:\*\* A (Correct)

These answers are correct based on the provided information. If you have further questions or if there's anything specific you'd like to focus on, feel free to let me know!

Certainly! Here are some conceptual short questions along with their answers:

1. \*\*Question:\*\*

What is the purpose of the shebang (`#! /bin/bash`) at the beginning of a Bash script?

- \*\*Answer:\*\* The shebang specifies the shell to execute the script, and in this case, it's `/bin/bash`.

2. \*\*Question:\*\*

Explain the significance of the command `sudo systemctl start apache2` in the context of services.

- \*\*Answer:\*\* This command starts the Apache web server service using the `systemctl` tool with elevated privileges (`sudo`).

3. \*\*Question:\*\*

Why is it recommended to disable password authentication in SSH and use public/private key pairs?

- \*\*Answer:\*\* Disabling password authentication enhances security by relying on cryptographic keys, making it harder for unauthorized entities to gain access.

4. \*\*Question:\*\*

Describe the purpose of the cron utility and how it is used in Linux.

- \*\*Answer:\*\* Cron is a task scheduler in Linux that allows users to schedule jobs (cron jobs) to run periodically at specified times.

5. \*\*Question:\*\*

What is the purpose of the `chmod` command, and how is it used to modify file permissions?

- \*\*Answer:\*\* `chmod` is used to change file permissions. It uses symbolic or octal notation to specify permission changes (e.g., `chmod u+x file`).

6. \*\*Question:\*\*

Explain the role of the `find` command in Linux and provide an example use case.

- \*\*Answer:\*\* `find` is used to search for files and directories based on various criteria. For example, `find /dir -name "\*.txt"` searches for all text files in a directory.

7. \*\*Question:\*\*

What is the purpose of tab completion in a Linux shell, and how does it improve user experience?

- \*\*Answer:\*\* Tab completion automatically completes commands or file/directory names, enhancing efficiency and reducing typing errors for users.

8. \*\*Question:\*\*

Why is it important to have a shebang and make a Bash script executable (`chmod +x script.sh`)?

- \*\*Answer:\*\* The shebang specifies the interpreter, and making the script executable allows it to be run like a command without explicitly invoking the shell.

9. \*\*Question:\*\*

What is the function of the `scp` command in Linux, and how does it differ from `cp`?

- \*\*Answer:\*\* `scp` (secure copy) is used for secure file transfer between hosts over SSH. It encrypts the transfer, unlike `cp`.

10. \*\*Question:\*\*

Explain the purpose of the `netstat` command and how it can be used to view open network ports.

- \*\*Answer:\*\* `netstat` displays network-related information, and `netstat -tulpn` lists open ports along with associated processes.

### SSH Configuration:

1. \*\*Question:\*\*

What is the purpose of the `sshd\_not\_to\_be\_run` file in SSH, and how can you remove it to activate SSH?

- A) `sudo rm /etc/ssh/sshd\_not\_to\_be\_run`

- B) `sudo touch /etc/ssh/sshd\_not\_to\_be\_run`

- C) `sudo rm -f /etc/ssh/sshd\_not\_to\_be\_run`

- D) `sudo cp /etc/ssh/sshd\_not\_to\_be\_run /etc/ssh/sshd\_config`

- \*\*Answer:\*\* C

\*\*Correction:\*\* Correct!

2. \*\*Question:\*\*

How do you check the status of the SSH service?

- A) `sudo service ssh status`

- B) `sudo systemctl status ssh`

- C) `ssh status`

- D) `systemctl ssh status`

- \*\*Answer:\*\* B

\*\*Correction:\*\* Correct!

3. \*\*Question:\*\*

If you want to stop SSH temporarily, which command would you use?

- A) `sudo systemctl stop ssh`

- B) `sudo service ssh stop`

- C) `sudo ssh stop`

- D) `systemctl stop ssh`

- \*\*Answer:\*\* A

\*\*Correction:\*\* Correct!

4. \*\*Question:\*\*

To enable password authentication, what value should be set in the `sshd\_config` file?

- A) `password\_authentication yes`

- B) `PasswordAuthentication yes`

- C) `passwordauthentication yes`

- D) `PasswordAuthentication no`

- \*\*Answer:\*\* B

\*\*Correction:\*\* Correct!

5. \*\*Question:\*\*

What is the purpose of the `ssh-add` command, and when would you typically use it?

- A) Adds an SSH key to the agent; used to avoid entering the key passphrase repeatedly.

- B) Adds a user to the SSH group.

- C) Adds a new SSH key pair.

- D) Adds a remote server to the known\_hosts file.

- \*\*Answer:\*\* A

\*\*Correction:\*\* Correct!

### File and Directory Operations:

6. \*\*Question:\*\*

How can you find and delete all files except those with a `.zip` extension in a directory?

- A) `find /directory/ -type f -name '\*.zip' -delete`

- B) `find /directory/ -type f -not -name '\*.zip' -exec rm -f {} \;`

- C) `find /directory/ -type f -not -name '\*.zip' -delete`

- D) `find /directory/ -type f -name '\*.zip' -exec rm -f {} \;`

- \*\*Answer:\*\* B

\*\*Correction:\*\* Correct!

7. \*\*Question:\*\*

Explain the difference between `>` and `>>` when redirecting output in Linux.

- A) `>` overwrites the file, while `>>` appends to the file.

- B) `>` appends to the file, while `>>` overwrites the file.

- C) Both `>` and `>>` overwrite the file.

- D) Both `>` and `>>` append to the file.

- \*\*Answer:\*\* A

\*\*Correction:\*\* Correct!

8. \*\*Question:\*\*

How do you use the `du` command to show the total disk space used by a directory?

- A) `du -sh`

- B) `du -h`

- C) `du -s`

- D) `du -hs`

- \*\*Answer:\*\* A

\*\*Correction:\*\* Correct!

9. \*\*Question:\*\*

What does the `stat -c "%a %n"` command display for a file or directory?

- A) File size and name

- B) Access permissions in octal and name

- C) Owner and group of the file

- D) Modification time and name

- \*\*Answer:\*\* B

\*\*Correction:\*\* Correct!

10. \*\*Question:\*\*

How do you recursively change the permissions of all files in a directory to 644 and all directories to 755?

- A) `sudo find /path/to/directory -type f -exec chmod 644 {} \;`

- B) `sudo find /path/to/directory -type d -exec chmod 755 {} \;`

- C) Both A and B

- D) `sudo chmod -R 644 /path/to/directory; sudo chmod -R 755 /path/to/directory`

- \*\*Answer:\*\* C

\*\*Correction:\*\* Correct!

### Bash Scripting:

11. \*\*Question:\*\*

What is the purpose of the `cron` utility in Linux, and how does it differ from `at`?

- A) `cron` schedules recurring tasks, while `at` schedules one-time tasks.

- B) `at` schedules recurring tasks, while `cron` schedules one-time tasks.

- C) Both `cron` and `at` are used for the same purpose.

- D) `cron` and `at` are unrelated utilities.

- \*\*Answer:\*\* A

\*\*Correction:\*\* Correct!

12. \*\*Question:\*\*

How can you create a new user and add them to the sudo group in a single command?

- A) `sudo adduser <username> && sudo usermod -aG sudo <username>`

- B) `sudo adduser <username>; sudo usermod -aG sudo <username>`

- C) `sudo adduser <username> && usermod -aG sudo <username>`

- D) `sudo useradd <username> && sudo usermod -aG sudo <username>`

- \*\*Answer:\*\* A

\*\*Correction:\*\* Correct!

13. \*\*Question:\*\*

Explain the purpose of the `tee` command in Linux.

- A) Displays the contents of a file.

- B) Copies files from one directory to another.

- C) Redirects output to multiple files and the terminal.

- D) Removes files and directories.

- \*\*Answer:\*\* C

\*\*Correction:\*\* Correct!

14. \*\*Question:\*\*

What does the `echo $?` command display in the context of a shell script?

- A) The exit status of the last command.

- B) The process ID of the current shell.

- C) The number of arguments passed to the script.

- D) The output of the last command.

- \*\*Answer:\*\* A

\*\*Correction:\*\* Correct!

15. \*\*Question:\*\*

In a Bash script, what does the `$(command)` syntax achieve?

- A) Executes the command and echoes the result.

- B) Comments out a block of code.

- C) Defines a function.

- D) Redirects the output to a file.

- \*\*Answer:\*\* A

\*\*Correction:\*\* Correct!

Certainly! Here are 10 more conceptual short questions along with their answers:

1. \*\*Question:\*\*

What is the purpose of the `chown` command in Linux, and how does it differ from `chmod`?

- \*\*Answer:\*\* `chown` changes the ownership of a file or directory, while `chmod` changes its permissions.

2. \*\*Question:\*\*

Explain the role of the `top` command in monitoring system processes.

- \*\*Answer:\*\* `top` displays real-time information about system processes, including CPU and memory usage.

3. \*\*Question:\*\*

How do you use the `grep` command to search for a specific pattern in multiple files?

- \*\*Answer:\*\* `grep "pattern" file1 file2` searches for the pattern in both file1 and file2.

4. \*\*Question:\*\*

What is the purpose of the `sed` command, and how does it differ from `awk`?

- \*\*Answer:\*\* `sed` is used for text stream processing and transformations, while `awk` is a more powerful pattern scanning and processing language.

5. \*\*Question:\*\*

Explain the concept of port forwarding and how it is commonly used.

- \*\*Answer:\*\* Port forwarding redirects network traffic from one port on a computer to another, often used for accessing services behind a router.

6. \*\*Question:\*\*

What does the command `ps aux | grep process\_name` do, and why is it useful?

- \*\*Answer:\*\* It lists detailed information about processes containing "process\_name," helping to find and monitor specific processes.

7. \*\*Question:\*\*

How does the `tar` command work, and what is its purpose in Linux?

- \*\*Answer:\*\* `tar` is used to create compressed archive files, bundling multiple files and directories into a single file.

8. \*\*Question:\*\*

Describe the purpose of the `curl` command in Linux, and provide an example of its usage.

- \*\*Answer:\*\* `curl` is a tool for making network requests; for example, `curl -O https://example.com/file.txt` downloads a file.

9. \*\*Question:\*\*

Explain the purpose of the `uname -a` command and what information it provides.

- \*\*Answer:\*\* `uname -a` displays detailed information about the system, including the kernel version and system architecture.

10. \*\*Question:\*\*

How does the `echo` command work in the context of shell scripting, and why is it commonly used?

- \*\*Answer:\*\* `echo` prints text or variables to the terminal; it is used for displaying messages and variables in shell scripts.