**General Instructions:**

* **Follow the instructions given in each section.**
* **Make sure that you attempt the questions in order.**

**SECTION-A (10\*1 mark=10 marks)**

***(All questions are compulsory)***

Which command is used to display the system's uptime?

**a. uptime**

b. date

c. hostname

d. uname

Answer: a

Which command is used to display the system's hostname?

a. uptime

b. date

**c. hostname**

d. uname

Answer: c

Which command is used to run a process in the foreground?

a. bg

b. ps

**c. fg**

d. nice

Answer: c

Which command is used to display network connection statistics?

**a. netstat**

b. ping

c. traceroute

d. ifconfig

Answer: a

Which command is used to troubleshoot network connectivity issues?

a. ifconfig

**b. ping**

c. traceroute

d. netstat

Answer: b

Which command is used to create a new shell script file?

a. touch

b. cat

**c. nano**

d. echo

Answer: c

Which type of shell is commonly used in Linux systems?

a. cmd

**b. bash**

c. powershell

d. zsh

Answer: b

Which command is used to change the current working directory?

a. pwd

b. ls

**c. cd**

d. echo

Answer: c

Which command is used to perform arithmetic operations in Linux?

a. date

b. cal

**c. bc**

d. uptime

Answer: c

Which command is used to execute a script in Linux?

a. exec

**b. source**

c. run

d. start

Answer: b

**SECTION-B (5\*2 mark=10 marks)**

***(All questions are compulsory)***

Q1. What is the purpose of the 'if' statement in shell scripting?

a. To define a variable

b. To perform a loop

c. To execute a command

**d. To conditionally execute a block of code**

Q2. What is the difference between a shell variable and an environment variable?

a. Shell variables are set globally, while environment variables are local to a script

b. Shell variables are temporary, while environment variables are permanent

**c. Shell variables are local to a script, while environment variables are set in the shell's environment**

d. There is no difference between shell and environment variables

Answer: c. Shell variables are local to a script, while environment variables are set in the shell's environment.

Q3.Which option of the date command can be used to display the date in a specific format?

A) -d

B) -r

C) -u

**D) -I**

Answer: D) -I

Q4. What is the purpose of a shebang line in a shell script?

A) To comment out a section of code

**B) To define the default shell to be used to run the script**

C) To specify command line arguments

D) To declare variables

Answer: B) To define the default shell to be used to run the script

Q5. Which command can be used to display the IP address configuration of a network interface?

**A) ifconfig**

B) ping

C) traceroute

D) dig

Answer: A) ifconfig

**SECTION-C() (4x5 marks=20 marks)**

Q1.What is a signal in Unix-based operating systems, and how can you send a signal to a running process?

Answer: A signal is a software interrupt that can be sent to a running process to notify it of a particular event or to request it to perform a particular action. To send a signal to a running process, you can use the "kill" command with the appropriate signal number or name. For example, "kill -9 1234" sends the "SIGKILL" signal to the process with the PID "1234".

Q2.What is a shebang in shell scripting, and why is it important?

Answer: A shebang is a special character sequence at the beginning of a shell script that specifies the interpreter to use when running the script. For example, "#!/bin/bash" specifies that the script should be run using the Bash shell. It is important because it ensures that the script is executed by the correct interpreter

Q3. Write commands to execute following:

a.How would you use the "netstat" command to display all listening network ports?

b.How would you use the "lsof" command to list all open files owned by a specific user?

Answer:

a) netstat -tln

b) lsof -u [username]

Q4.You want to perform some calculations on your Linux system.

a) How can you perform basic calculations using the "bc" command?

b) How can you use the "cal" command to see the calendar for the current month?

Answer:

a) To perform basic calculations using the "bc" command, we can simply enter the calculations in the terminal and press enter. For example, to perform the calculation "5+3", we would enter "5+3" in the terminal and press enter.

b) To see the calendar for the current month, we can use the "cal" command without any arguments.