[Total No. of Pages: 4     ]

                        Max. Marks: 40

General Instructions:

* Follow the instructions given in each section.
* Do not write anything on the question paper, except your roll no.
* Make sure that you attempt the questions in order.

**Section - A**

**(Q 1 to 10: Each question carries 1 mark)**

Q.1. Which option of the "traceroute" command is used to specify the maximum number of hops?

1. **-m**
2. -n
3. -q
4. -T

Q.2. What is the difference between the bg and the fg commands?

1. The bg command moves a job to the foreground, while the fg command moves a job to the background.
2. **The bg command terminates a background job, while the fg command resumes a suspended job in the foreground.**
3. The bg and fg commands are the same and can be used interchangeably.
4. The bg and fg commands are used to manage different types of processes.

Q.3. What is the ps command used for in Linux?

1. To display the current directory
2. **To display a list of running processes**
3. To display a list of installed packages
4. To display system information

Q.4. How to send a specific number of packets using ping command in linux?

1. ping -c google.com
2. **ping -c 5 google.com**
3. ping google.com 5
4. ping -p 5 google.com

Q.5. How to hide the details while taking user input?

1. read
2. read -p
3. read -d
4. **read -s**

Q.6 What is the syntax for using the which command to find the location of a command?

1. **which command\_name**
2. which -l command\_name
3. which -p command\_name
4. which -f command\_name

**Q.7** How to check list of available shells in system?

1. Shells
2. **cat /etc/shells**
3. cat shells
4. cat SHELLS

Q.8. What will be output of cal -3 ?

1. **past current and next month calendar**
2. year 3 calendar
3. date of current month
4. calendar of 3rd month

**Q.9.** The output of the following command date +%D

1. 2/3/23
2. 3:02:23
3. **03/02/23**
4. 03.02.23

Q.10 What is the syntax for using the traceroute command?

1. **traceroute destination\_address**
2. traceroute -t destination\_address
3. traceroute -h destination\_address
4. traceroute -r destination\_address

**Section - B**

**(Q 11 to 15 : Each question carries 2 marks)**

Q.11. How to run any command in background?

1. **$command &**
2. $&command
3. $fg command
4. $bg command

**Q.12.** #! in shell script is called as

\_\_\_?

1. **shebang**
2. bash
3. shell
4. well

Q.13. Which command is used to view all processes owned by you ?

1. ps -i
2. **ps -x**
3. ps -g
4. ps -zl

Q.14. Which of the following is not a shell in Linux?

1. Bash
2. sh
3. Zsh
4. **Python**

Q.15. What is the syntax for using the "bc" command to perform a simple arithmetic calculation?

1. bc expression
2. **expression | bc**
3. bc -e expression
4. expression bc

**Section – C**

**(Q 16 to 19: Each question carries 5 marks)**

Q.16. Scenario: You want to check the system information and see which operating system you are running . (2.5 marks each)

a) Which command will you use to see the operating system

information?

b) How can you see the system's kernel version?

**Solution:**

a) To see the operating system information, we can use the "uname" command with the "-a" option.

b) To see the system's kernel version, we can use the "uname" command with the "-r" option.

Q.17. What is a signal in Unix-based operating systems, and how can you send a signal to a running process?

**Solution:**

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".

Q.18. Make a Menu driven shell script program, take a filename as input from the user and a number 1 or 2.

a) For num= 1 check whether the file has write permission or not if yes then open the file in nano editor

b) For num=2 check whether the file has execute permission or not if yes print it’s a executable

**Solution:**

echo "Enter the file name: "

read filename

if [ -f $filename ]

then

echo "Enter a number between 1-4: "

read num

case $num in

1 ) if [ -w $filename ]

then

nano $filename

else

echo "File does not have write permission"

fi

;;

2 ) if [ -x $filename ]

then

echo "File is executable"

else

echo "File is not executable"

fi

;;

\*) echo "Please enter a valid number between 1-4"

;;

esac

else

echo "File does not exist"

fi

Q.19. Write the use of the following commands:

a) traceroute (2 marks)

b) ping (2 marks)

c) nslookup (1 mark)

**Solution:**

a) traceroute

The traceroute command attempts to trace the route an IP packet follows to an Internet host by launching UDP probe packets with a small maximum time-to-live (Max\_ttl variable), then listening for an ICMP TIME\_EXCEEDED response from gateways along the way.

b) ping

PING (Packet Internet Groper) command is used to check the network connectivity between host and server/host. This command takes as input the IP address or the URL and sends a data packet to the specified address with the message “PING” and get a response from the server/host this time is recorded which is called latency. Fast ping low latency means faster connection.

c) nslookup

**Nslookup**(stands for “Name Server Lookup”) is a useful command for getting information from the DNS server. It is a network administration tool for querying the Domain Name System (DNS) to obtain domain name or IP address mapping or any other specific DNS record. It is also used to troubleshoot DNS-related problems.

**Syntax:**

nslookup [option]