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 What is the parent process of all the processes?

1. bash
2. **systemd**
3. ps
4. None

Q.2What is used to specify the end of if block in script?

1. **fi**
2. }
3. else
4. None

Q.3. Command to specify the starting ttl value to 3 in traceroute

1. traceroute 3
2. **traceroute –t 3**
3. traceroute –q 3
4. trqceroute –n 3

Q.4. What is the default value of packet size traceroute command sends?

1. 30 bytes
2. 100 bytes
3. **60 bytes**
4. 10 bytes

Q.5. Which of the following is not a valid option of uname?

1. -a
2. -s
3. -v
4. **-z**

Q.6. Which command is used for displaying date in the format dd/mm/yyyy?

1. date +%m
2. date +%h
3. **date +”%d/%m/%Y”**
4. date +”%d/%m/%y”

**1/1**

**1 min**

Q.7. All processes have a parent process

1. False
2. **true**
3. Can’t be said
4. None

Q.8. What is numeric value of SIGKILL signal?

1. **9**
2. 1
3. 5
4. 3

Q.9. Which command is used for extracting all the system information?

1. uname -s
2. uname -n
3. **uname -a**
4. uname

Q.10. Who can set the niceness value of a process between -20 to -1?

1. Only Home user
2. **Only root user**
3. any user
4. niceness value can't be changes

**Section - B**

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

Q.11. A user can change the default log-in shell using:

1. chmod
2. **chsh**
3. rmsh
4. tchsh

Q.12. What is the purpose of the 'if' statement in shell scripting?

1. To define a variable**secs**
2. To perform a loop
3. To execute a command
4. **To conditionally execute a block of code**

Q.13. What is the difference between a shell variable and an environment variable?

1. Shell variables are set globally, while environment variables are local to a script
2. Shell variables are temporary, while environment variables are permanent
3. **Shell variables are local to a script, while environment variables are set in the shell's environment**
4. There is no difference between shell and environment variables

Q.14. Which option is used with the nice command to set the priority level?

1. -t
2. **-n**
3. -q
4. -r

Q.15. Which of the following command can be used to view the current priority of a process?

1. renice
2. nice
3. **ps**
4. top

**Section – C**

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

Q.16. Write a shell script to get the current date, time, username and current working directory.

Solution:

create a file called ‘**userstats.sh**

#!/bin/bash

echo “Hello, $LOGNAME”

echo “Current date is ‘date’ “

echo “User is ‘who i am’ “

echo “Current directory ‘pwd ‘ “

Place execute permission and run the script as shown below.

# chmod 755 userstats.sh

# ./userstats.sh

Q.17. Write a shell script that displays a list of all the files in the current directory to which the user has read, write and execute permissions.

Solution: INPUT: sh prog3.sh

OUTPUT: List of Files which have Read, Write and Execute Permissions in Current Directory pp2.txt

echo "List of Files which have Read, Write and Execute Permissions in Current Directory"

for file in \* do

if [ -r $file -a -w $file -a -x $file ] then

echo $file fi

done

Q.18. Give answer for the following:

a) How can you see the list of running processes? (1 mark)

b) How can you move a process from the foreground to the background?

(1 mark)

c) How would you use the "lsof" command to troubleshoot a network

connection issue? (3 marks)

Solution:

a) To see the list of running processes, we can use the "ps" command with the "-ef" option.

b) To move a process from the foreground to the background, we can use the "bg" command followed by the job ID of the process.

c) The "lsof" command can be used to identify which processes have open network connections. To troubleshoot a network connection issue, you can use "lsof -i" to list all processes with network connections. You can then filter the output to identify the process associated with the problematic connection.

Q.19. Enlist some Linux networking and troubleshooting commands?

Solution: Every computer is connected to the network internally or externally for the purpose of exchanging information. Network troubleshooting and configuration are essential parts of and network administration. The networking commands enable you to quickly troubleshoot connection issues with another system, check the response of another host, etc.

A network administrator maintains a system network that includes network configuration and troubleshooting. Mentioned below are few commands along with their description:

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* Hostname: To view the hostname (domain and IP address) of the machine and to set the hostname.
* Ping: To check if the remote server is reachable or not.
* ifconfig: To display and manipulate route and network interfaces. It displays network configuration. ‘ip’ is the replacement of ifconfig command.
* netstat: It displays network connections, routing tables, interface statistics. ‘ss’ is the replacement of netstat command which is used to get more information.
* Traceroute: It is a network troubleshooting utility that is used to find the number of hops required for a particular packet to reach the destination.
* Tracepath: It is the same as traceroute with a difference that it does not require root privileges.
* Dig: This command is used to query the DNS name servers for any task related to the DNS lookup.
* nslookup: To find DNS related query.
* Route: It shows the details of the route table and manipulates the IP routing table.
* mtr: This command combines ping and track path into a single command.
* Ifplugstatus: This command tells us whether the network cable is plugged in or not.