PART A - MULTIPLE CHOICE/SELECTION: 10 QUESTIONS 10 MARKS

Each question has 1 correct answer.

1. The i-node is defined as:

1. A block of data containing size of the most recently created file
2. A data structure holding all meta data for files containing text data only
3. A data structure holding all meta data for each file on Linux file system
4. None of the above

An inode, which contains metadata about the file, such as the file's owner, permissions, timestamps, and the location of the file's data on the disk.

2. Suppose you want to duplicate file my.txt in your current working directory to another directory myhw. Which command let you complete this task when you are in your home directory?

1. rm my.txt && mv f1 myhw
2. cp my.txt myhw
3. cp fmyhw my.txt
4. cut f1.txt && pest myhw/

3. What will the command "Is f\*.???" will do?

1. List all files that start with character f and the extension is of any type
2. List all the files that are two characters long. the first character is f and the extension is txt
3. Displays all files that have names of three character long and first letter is f and file extension is of two characters long
4. None one above

The asterisk (\*) is a wildcard character that matches any number of characters. The question marks (?) are also wildcard characters that match any single character.

4. What does the command ps -ef | grep uid display?

1. All processes running on the system owned by all users currently logged on
2. List processes on the system owned by uid
3. All processes running in the background
4. All processes running in the foreground

The command "ps -ef" lists all the processes running on the system along with their details like process id (PID), user ID (UID), memory usage, etc. Note that "uid" in the command should be replaced with the actual user ID that you want to search for.

5. The correct command to rename file "x1.bash" with "x2.bash".

1. rm x1.bash && touch x2.bash
2. mv xl.bash x2.bash
3. rename x1.bash x2.bash
4. cp x1.bash x2.bash

6. Which utility is best to replace all the entries of "apple" with "banana" in a text file from the shell prompt?

1. sed
2. awk
3. grep
4. egrep

Sed is commonly used to perform text transformations on a file or input stream. One of its most common uses is to search for a pattern in a file and replace it with another pattern.

7. If a process is running in the background, what would ctrl + x do?

1. It kills all background processes
2. It kills the process running in the background
3. It will send the running process in foreground to the stopped state
4. Nothing

8. sed command is best described as:

1. A command that allows users to process and manipulate data and produce formatted output
2. A scripting language, combine patterns with relational operators for filtering a record. (awk)
3. A scripting language, can be used for filtering a record, and printing it on the terminal (Not main purpose)
4. All options are correct

9. Consider the following text saved in a file called "my.txt". Which grep command will return only the first line.

A man runs in day light

A man, a cat and dog walk in night

A man, a horse, a do go to the forest

A man, a dog,a cat, a fox run together

1. grep “day” my.txt
2. grep -v “dog” my.txt
3. grep “Light” my.txt
4. grep -v “,” my.txt
5. None of the commands will return first line

10. Which command is the equivalent of; chmod 754 my.txt

1. ﻿﻿﻿﻿chmod u=rwx, g=rx, o=r my.txt
2. ﻿﻿﻿chmod u=rwx, g=rx o=rw my.txt
3. ﻿﻿﻿chmod go-w my.txt

d. chmod a+rx, u+w mydir

1. Display i-node numbers of all files in directory mydir staying in your home directory

ls -i ~/mydir/\*

/\* is not necessary if you only want to display the inode numbers of the files in the "mydir" directory itself, without listing any files or directories within it.

2. Display file “mydata.txt” in descending order:

sort -r mydata.txt

3. Create 10 files: f1.txt to f10.txt

touch f{1..10}.txt 兩點only

4. Removing all files of all types "doc" asking questions for confirmation before removing.

rm -ir \*.doc

5. Display bottom 10 lines of a file myfile.txt and save results to a file bottom.txt

tail myfile.txt |tee bottom.txt (display the last 10 lines of the file by default.)

6. Rename command Linux date command with “today\_date”

alias today\_date=date

7. Display all entries in a file ending with word "end"

grep -w "end$" myfile.txt

8. List the names of currently logged on user in descending order

who | sort -r

9. Display lines 5 to 10 of a file called mydata.txt using sed command

sed -n ‘5-10p’ mydata.txt

10. Write a command to creates a hard link for a file myfile in a directory mydir in your home directory

ln ~/mydir/myfile myfile.hard.link

11. Write a single command to create three directories c1, c2 and c3 under a directory courses.

mkdir -p courses/c{1..3}

12. Use sed command to entries of "honda" in a file cars.txt

sed -n '/honda/p' cars.txt

13. Write a command to translate all lower case letters in a file "source.txt" with upper case and store it in another file "dest.txt"

tr 'a-z' 'A-Z' < source.txt |tee dest.txt

14. Write a command to display the second field of a file my.txt and save in another file second.txt. Assume “:” has used as delimiter

cut -d':' -f2 my.txt | tee second.txt

awk -F: ‘{print $2}’ my.txt | tee second.txt

15. Assume you are in ‘A’, then write command to go to ‘B’ subdirectory.

cd ../../scripts/B

16. Assume a file called parts.txt contains following data (last column is price)

1,HP,USB,36

2,Dell, Hard disk, 350

3,Intel, CPU, 100

4, Canada, computer,otherboard,200

5,Best Buy,keyboard,15

6,Dell,keyboard,20

1. Use cut command to display first 3 columns.

cut -d',' -f1-3 parts.txt

1. Write awk command to display entries containing prices greater than 100

awk -F',' '$4 > 100 {print}' parts.txt

awk -F',' '$NF > 100 {print $0}' parts.txt

1. Write awk command to display all items of "Intel"

awk -F',' '$0 ~ /Intel/ {print}' parts.txt

The ~ symbol is used to perform a pattern match, and the /Intel/ specifies the pattern to match.

1. Suppose that the current permission assigned to a file “mydata.txt” is rwx-rwx-rwx.

Change the permission of rw- r—r—using absolute (octal) method.

chmod 644 mydata.txt

2. Using cut command, display third field in a file record.txt which has “:" as delimiter.

cut -d “:” -f3 record.txt

3. Write a command to display top 5 lines of a file "myfile.txt”

head -n 5 myfile.txt

4. Write a command to display the numbers stored in a file "data.txt" in descending order

sort -rn data.txt

the -r option is used to sort the numbers in reverse order, and the -n option is used to sort the numbers numerically

Without -n, -r sort the lines of the file in reverse alphabetical order by default.

5. ﻿﻿﻿Write a command to remove a non-empty directory "mydir"

rm -r mydir

6. Write command display all files in your current directory whose size is more that 10K bytes

find . -size +10k

7. List all users logged on whose name begin with "m”

who | grep '^m'

who | awk '$1 ~ /^m/ {print}'

8. Write command to count number of lines in a file "myfile.txt"

wc -l myfile.txt

9. From following diagram, specify file name, soft link name and directory name

lrwxrwxrwx 1 ubuntu ubuntu 2 Apr 6 08:02 f8link -> f8

-rw-rw-r-- 1 ubuntu ubuntu 0 Jan 15 18:55 f9

drwxrwxr-x 3 ubuntu ubuntu 4096 Feb 19 16:04 files

symbolic link named : f8link

regular file : f9

directory : files

1. Write a command to display all files with are of type txt and whose name is of two characters

ls ??.txt

1. Write a command to display all files whose type is of 2 character long and file name of two characters

ls ??.??

1. Write a command to move all files of type txt to a directory mydir in your home directory

mv \*.txt ~/mydir/

1. Write a command to delete all files of whose file names of three character long

rm -rf ???.\*

-f : forces the removal of files without prompting for confirmation, even if the file is write-protected.

1. Write a command to display hidden files in your current working directory

ls -a

Assume data.txt file contains following text:

The life is life

Linux Linux is operating system

Linux

-2

--3

125

+123

++123

6.5

1. Which command will display last line in data.txt?

1. egrep "[0-9]{1,}[.][0-9]{0,}$" data.txt (will display any line in data.txt that contains a decimal number, but it may not necessarily be the last line.)
2. egrep -v "[0-9][0-9][0-9]-[0-9][0-9][0-9]-[0-9][0-9][0-9][0-9]" data.txt
3. egrep "^[0-9]{1,}[.][0-9]{0,}$" data.txt (will display any line that starts with a decimal number, but it may not necessarily be the last line.)

2. Write command to display second line in data.txt

sed -n '2p' data.txt

egrep "^(Linux ){2,}" data.txt //空格好重要

3. Write a command to display all numbers with single + or - sign and ending with numbers in data txt

grep -E '^[+-][0-9]+$' data.txt // -E is a must

-2

+123

grep -E '^[+-][0-9]{1,}$' data.txt // -E is a must

-2

+123

4. Write a command to which will display all whole numbers in data.txt

grep -E '^[+-]?[0-9]+$' data.txt // -E is a must

-2

125

+123

5. Write a command which will display third line of data.txt

sed -n '3p' data.txt

grep "^Linux$" data.txt grep "^(Linux)$" data.txt (NOT WORK)

6. Which of following Linux command is invalid

grep "the" myfile | ls | more

  ls | grep "the" > file2

head -25 file1 | more

ls | sort | tail -30 | more

The command "grep "the" myfile | ls | more" is invalid because you cannot use the "ls" command in conjunction with a pipe from the "grep" command, as "ls" does not accept input from a pipe.

7. Which character you can use to separate commands on shell prompt?

1. ;
2. :
3. ,

When you type multiple commands separated by semicolons, the shell will execute each command sequentially, one after the other, in the order in which they appear.

8. Which command you can use to print current month?

date

Tue Apr 18 20:42:11 EDT 2023

cal

April 2023

Su Mo Tu We Th Fr Sa

1

2 3 4 5 6 7 8

9 10 11 12 13 14 15

16 17 18 19 20 21 22

23 24 25 26 27 28 29

30

9. What is the purpose of following redirection symbols?

1. 2> used to redirect standard error (stderr) output to a file or device.
2. | used to pipe the output of one command to another command as input.
3. < used to redirect input from a file to a command.
4. > used to redirect standard output (stdout) to a file or device

10. Examine the bash shell script exam1.bash and give the output of the commands in the order given below:

**#!/bin/bash**

**if [ $# -ne 2 ]**

**then**

**echo "USAGE: $0 arg1 arg2"**

**exit**

**fi**

**if [ $1 -lt 10 ] && [ $2 -lt 20 ]**

**then**

**echo $\***

**num=$(($1 - $2))**

**echo "Answer is: $num"**

**else**

**echo "Error: Arguments are not according to the condition"**

**fi**

**1. exam1.bash**

**USAGE: ./exam1.bash arg1 arg2**

**2. exam1.bash 11 25**

**Error: Arguments are not according to the condition**

**3. exam1.bash 5 15**

**5 15**

**Answer is: -10**

**#!/bin/bash**

**if [ $# -eq 0 ]**

**then echo "No arguments found !!!"**

**exit 1**

**elif [ $# -eq 2 ]**

**then echo "$\*"**

**else**

**echo "You must provide at most two arguments"**

**exit 1**

**fi**

1./exam2.bash

No arguments found !!!

2 ./exam2.bash cat fish dog parrot

You must provide at most two arguments

3 ./exam2.bash swallow parrot

swallow parrot