CDAC MUMBAI

Concepts of Operating SystemAssignment 2

Part A

What will the following commands do?

- echo "Hello, World!"

  will print "Hello, World!"

- name="Productive"

  productive will be save in name.

- touch file.txt

  create file

- ls -a

  it shows all the content of present file

- rm file.txt

  removes the file.txt

- cp file1.txt file2.txt

  copy the contents of file1 to file2

- mv file.txt /path/to/directory/

  move the file

- chmod 755 script.sh

  command gives the owner full permissions. In 755 number, the first number **7** can be defined as permission provided to the owner, the second number **5** can be defined as the group permission, and the third number **5** can be defined as the permission of every other.

- grep "pattern" file.txt

  will search for the patterns in file.txt

- kill PID

  it kills or remove the process

□ mkdir mydir && cd mydir && touch file.txt && echo "Hello, World!" > file.txt && cat file.txt

create directory of name mydir, then switching to it. create file.txt having content Hello World. And then opening the file.

□ ls -l | grep ".txt"

will find the .txt files

□ cat file1.txt file2.txt | sort | uniq

this will sort the contents and then will show the uique values

□ ls -l | grep "^d"

matching only lines that start with "d".

□ grep -r "pattern" /path/to/directory/

Search for a specific keyword or pattern in a file.

□ cat file1.txt file2.txt | sort | uniq –d

output lines that are repeated in the file1 and file2

□ chmod 644 file.txt

owner gets read n write permission and read only for everyone else.

□ cp -r source_directory destination_directory

Copies directory structure recursively.

□ chmod u+x file.txt

gives owner the execution permission.

□ echo $PATH

list of directories where executable files are stored, means give their path

Part B

Identify True or False:

1. **ls** is used to list files and directories in a directory. -TRUE
2. **mv** is used to move files and directories. . -TRUE
3. **cd** is used to copy files and directories. FALSE
4. **pwd** stands for "print working directory" and displays the current directory. -TRUE
5. **grep** is used to search for patterns in files. TRUE
6. **chmod 755 file.txt** gives read, write, and execute permissions to the owner, and read and executepermissions to group and others. TRUE
7. **mkdir -p directory1/directory2** creates nested directories, creating directory2 inside directory1if directory1 does not exist. TRUE
8. **rm -rf file.txt** deletes a file forcefully without confirmation. . -TRUE

Identify the Incorrect Commands:

1. **chmodx** is used to change file permissions. INCORRECT
2. **cpy** is used to copy files and directories. INCORRECT
3. **mkfile** is used to create a new file. INCORRECT
4. **catx** is used to concatenate files. INCORRECT
5. **rn** is used to rename files. CORRECT

Part C

Question 1: Write a shell script that prints "Hello, World!" to the terminal.

-nano a2.sh --- echo Hello, World! ---bash a2.sh

Question 2: Declare a variable named "name" and assign the value "CDAC Mumbai" to it. Print thevalue of the variable.

- name="CDAC mumbai" --- echo $name

Question 3: Write a shell script that takes a number as input from the user and prints it.

-nano a3.sh --- echo Enter a number—read----bash a3.sh ---then give the number

Question 4: Write a shell script that performs addition of two numbers (e.g., 5 and 3) and prints theresult.

```
Nano a4.sh
num1=5
num2=3
echo addition=$(( $num1 + $num2 ))
bash a4.sh
```

Question 5: Write a shell script that takes a number as input and prints "Even" if it is even, otherwiseprints "Odd".

```
Nano a4.sh
echo enter a num
read
if [ $num%2 =0 ]
then
echo num is even
else
echo num is odd
fi
bash a4.sh
```

Question 6: Write a shell script that uses a for loop to print numbers from 1 to 5.

```
echo numbers are
for ((i=1; i<=5; i++))
do
echo $i
done
```

Question 7: Write a shell script that uses a while loop to print numbers from 1 to 5.

```
echo using whileloop
i=1;
while [ $i -le 5 ];
do
echo $i
let i++;
     done
```

Question 8: Write a shell script that checks if a file named "file.txt" exists in the current directory. If itdoes, print "File exists", otherwise, print "File does not exist".

```
    if test -f num4.txt ;
then
echo file exist
else
echo  file dont exist
fi
```

Question 9: Write a shell script that uses the if statement to check if a number is greater than 10 andprints a message accordingly.

```
echo enter num
read x
if [ $x -gt 10 ]
then
echo  number is greater than 10
else
echo  number is smaller than 10
     fi
```

Question 10: Write a shell script that uses nested for loops to print a multiplication table for numbersfrom 1 to 5. The output should be formatted nicely, with each row representing a number and each column representing the multiplication result for that number.

```
for ((i=1; i<=5; i++))
do
        for((j=1; j<=10; j++))
        do
        echo  $i*$j = $(($i*$j))
        done
done
```

Question 11: Write a shell script that uses a while loop to read numbers from the user until the user enters a negative number. For each positive number entered, print its square. Use the **break** statement to exit theloop when a negative number is entered.

```
while((1==1))
do
echo enter number
read n
if (($n>=0))
then
echo $((n*n))
else
break
fi
done
```