Q1. A) Write and execute the following Commands on Linux

i) Create a directory named FYBCA under that create three sub-directories CO, RDBMS and OS.

```
cd fybca
mkdir RDBMS
mkdir CO
mkdir OS
```

ii) Create text file a.txt which contains rollno, name, class and percentage using Linuxcommand.

```
101 John  FYBCA 85
102 Alice FYBCA 78
103 Bob   FYBCA 92
Ctrl + Z
```

iii) Sort the data of a.txt on field percentage in ascending order.

```
Sort -k4 a.txt
```

iv) Display count of students of FYBCA Class in a.txt

```
Wc -l a.txt
```

v) Write VI command to delete first n lines.

```
Vi a.txt
ndd
```

Q1. B) Write a shell script to find area of rectangle.

```
#!/bin/bash

echo "Enter the length of the rectangle:"
read length
echo "Enter the breadth of the rectangle:"
read breadth

area=$((length * breadth))

echo "The area of the rectangle is: $area"
```

Q2. Write a shell script to check whether given number is odd or even.

```
#!/bin/bash
echo "Enter a number : "
read n
rem=$(( $n % 2 ))
if [ $rem -eq 0 ]
then
    echo "$n is even number"
else
    echo "$n is odd number"
fi
```

OR

Q2. Write menu driven program to perform the following tasks :

a) Show today's date and time
b) Show files in current working directory.
c) Show calendar

```
#!/bin/bash
echo '\tMenu Implementation'
echo ----------------------------------------
echo 1.Today DATE
echo 2.files of the system
echo 3.Show calendar
echo Enter your choice
read choice
case $choice in
1)date;;
2)ls;;
3)cal;;
*)echo This is not a choice
esac
```

Q1. A) Write and execute the following Commands on Linux

i) Display calendar of month March 2020.

```
cal march 2020
```

ii) Display all files along with their size.

```
ls –i
```

iii) Count number of files in current working directory

```
ls -l | wc –l
```

iv) Create file as follows and write commands for same.

$ cat file.txt
unix or linux os
is unix good os
is linux good os

Write a linux command to print characters of 4th position.

```
touch file.txt
cat > file.txt
cut -c 4 file.txt
```

v) Write Vi command to copy first2 lines and paste after 5th line.

```
2yy + P
```

Q1. B) Write a shell script to display sum of two numbers.

```
#!/bin/bash
echo "Enter the first number:"
read num1

echo "Enter the second number:"
read num2

sum=$((num1 + num2))

echo "The sum of $num1 and $num2 is: $sum"
```

Q2. Write a shell script to accept a file name, and display file details if the file exists and a suitable message if it does not.

```
#!/bin/bash
echo "enter the name of file"
read filename
if [ -e $filename ]
then
    echo " $filename exist"
    ls -l $filename
else
    echo "$filename not exist"
fi
```

OR

Q2. Write a shell script to find sum of digits.

```
#!/bin/bash
echo "enter num"
read num
sum=0
while [ $num -gt 0 ]
do
    digit=$((num%10))
    echo "$digit"
    sum=$((sum+digit))
    num=$((num/10))
done
echo "sum of digit:$sum"
```

Q1. A) Write and execute the following Commands on Linux

i) Display last 5 lines of any file.

tail -n 5 a.txt

ii) Remove files starting with A and having extension *.txt.

rm -A |rm *.txt

iii) Count number of lines of files having extension *.dat

Ls | wc -l *.txt

iv) Create file as follows and write commands for same.

$ cat file.txt

unix or linux os

is unix good os

is linux good os

Write a linux command to print characters by range 4-7.

Cut -b 4-7 file.txt

v) Write VI command to move first 2 lines and paste after 6th line.

2yy + P

Q1.B) Write a shell script to accept filename from user and display number of words from file.

```
#!/bin/bash
echo “enter filename”
read filename
wc -w $filename
```

Q2. Write a shell script to check whether file is readable, writable or both or executable.

```
#!/bin/bash
echo "enter a filename"
read filename
if [ -r $filename ];
then
      echo "$filename is readable"
fi
if [ -w $filename ];
then
      echo "$filename is writable"
fi
if [ -x $filename ];
then
      echo "$filename is executable"
fi
if [ -r $filename ] && [ -w $filename ];
then
      echo " $filename is readable and writable"
fi
```

OR

Q2. Write a shell script to find factorial of number.

```
#!/bin/bash
echo "enter a number"
read number
fact=1
for ((i=2;i<=$number;i++))
{
        fact=$((fact * i))
}
echo "factorial of number is $fact"
```

Q1. A) Write and execute the following Commands on Linux

i) Display long listing of all files in current working directory**.**

```
ls  -l
```

ii) Redirect the output the long listing of files in current directory to a.txt file.

```
ls | cat >> a.txt
```

iii) Count number of lines in a.txt.

```
wc -l a.txt
```

iv) Change permission of a.txt as give read, write, execute access for owner, Read, write for group and only read for other

```
chmod 764 a.txt
```

```
ls -l a.txt
```

v) Write Vi command to **r**eplace a single character under cursor.
r in esc mode

Q1.B) Write a shell script to accept filenames and append the contents of one file to the end of another file.

```
#!/bin/bash
echo "Enter the source file"
read source_file
echo "Enter the destination file"
read dest_file

if [ ! -f "$source_file" ]; then
   echo "Source file does not exist"
   exit 1
fi

if [ ! -f "$dest_file" ]; then
   echo "Destination file does not exist"
   exit 1
fi

cat "$source_file" >> "$dest_file"
echo "Contents of $source_file appended to
$dest_file"
```

Q2. Write a shell script that accepts directory name, if directory does not exist then it will create directory of same name.

```
#!/bin/bash
echo -e "Enter a directory"
read directory
if [ ! -e "$directory" ]; then
   mkdir "$directory"
   echo "$directory directory created"
else
   echo "Directory $directory already exists"
fi
```

OR

Q2 Write a shell script which will print the numbers 1 - 10 (each on a separate line) and whether they are even or odd.

```
for a in 1 2 3 4 5 6 7 8 9 10
do
   echo "$a"
   if [ $((a % 2)) -eq 0 ]
   then
      echo "$a is even"
   else
      echo "$a is odd"
   fi
done
```

Q1. A) Write and execute the following Commands on Linux

i) Create file a.txt using cat command.

Cat > a.txt

ii) Display first 5 lines of a.txt

head -n 5 a.txt

iii) Find the particular pattern from a.txt and display lines matching with pattern.

grep -n “pattern” a.txt

iv) Count number of words and characters of a.txt

wc -w | wc -c

v) Write and execute Vi command to delete N Character, starting with character under cursor.

Nx

N represents the number of characters you want to delete.

Q1.B) Write a shell script to display the file names that matches the given pattern

```
#!/bin/bash
pattern=$1
grep -rl "$pattern" *
```

Q2. Write a shell script which receives two file names as arguments. It should check whether the two file contents are same or not. If they are same then second file should be deleted.

```
#!/bin/bash
#!/bin/bash
file1="$1"
file2="$2"

if cmp -s "$file1" "$file2"; then
        rm "$file2"
           echo "Files have the same content. $file2
deleted."
      else
                echo "Files have different content."
fi
```

OR

Q2 Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.

```
#!/bin/bash
file="$1"
word="$2"

echo "File before removing the word \"$word\":"
cat "$file"

sed -i "/$word/d" "$file"

echo "File after removing the word \"$word\":"
cat "$file"
```

Q1. A) Write and execute the following Commands on Linux

i) Move all files *.sh from current directory to root directory.

```
mv *.sh
```

ii) Create file a.txt and display only duplicate lines.

```
cat > a.txt
sort a.txt | uniq -d
```

iii) Change permission of a.txt as read, write access for owner, read, execute for group and only execute for other.

```
chmod 651 a.txt
```

iv) Write and execute command to check the free and used memory status of system in MB and GB.

```
free -m
free -g
```

v) Write Vi command to delete N words beginning with character under cursor in any text file.

```
dNw
```

Q1. B) Write a shell script that displays a list of files in current directory to which the user has read, write and execute permissions.

```
#!/bin/bash
echo "Current working directory info"
var=$(pwd)
ls -l "$var"
```

Q2. Write menu driven program to perform arithmetic operations like +, - , *, /

```
#!/bin/bash
echo "Enter the first number:"
read a
echo "Enter the second number:"
read b

while true; do
   echo -e "\nChoose an operation:"
   echo "1. Addition"
   echo "2. Subtraction"
   echo "3. Multiplication"
   echo "4. Division"
   echo "5. Exit"
   read -p "Enter your choice: " choice

   case $choice in
      1)
         echo "Result of addition: $(($a + $b))"
         ;;
      2)
         echo "Result of subtraction: $(($a - $b))"
         ;;
      3)
         echo "Result of multiplication: $(($a * $b))"
         ;;
      4)
         if [ $b -ne 0 ]; then
            echo "Result of division: $(($a / $b))"
         else
            echo "Error: Division by zero"
         fi
         ;;
      5)
         echo "Exiting..."
         exit 0
         ;;
      *)
         echo "Invalid choice. Please enter a number
between 1 and 5."
         ;;
   esac
done
```

OR

Q2. Write a shell script that accepts any number of arguments and prints them in a reverse order.

```
#!/bin/bash
for((i=$#; i>0; i--)); do
        echo "${!i}"
   done
```

Q1. A) Write and execute the following Commands on Linux

i) Create a directory FYBCA under that create a file student.txt.

```
mkdir FYBCA
Cd FYBCA
Cat > student.txt
```

ii) Display all files along with their size

```
ls -l.
```

iii) Count the number of files in current working directory.

```
ls –l | wc -l
```

iv) Create the following text file a.txt and write commands based on it

This is line 1 UNIX UNIX

This is line 2 unix

This is line 3 Unix Unix

This is line 4 hello

Write a linux command to display count of lines that search pattern “unix”

```
cat > a.txt
grep -c 'unix' a.txt
```

v) Write Vi command to copy first three lines and paste after sixth line.

```
3yy
p
```

Q1. B) Write a shell script to evaluate basic arithmetic operations.

```
#!/bin/bash

echo "Enter the first number:"
read a
echo "Enter the second number:"
read b

echo "Addition: $(expr $a + $b)"
echo "Subtraction: $(expr $a - $b)"
echo "Multiplication: $(expr $a \* $b)"
echo "Division: $(expr $a / $b)"
```

Q2. Write a shell script to check whether two numbers are same or different.

```
#!/bin/bash

echo "Enter a:"
read a

echo "Enter b:"
read b

if [ $a -eq $b ]; then
   echo "a is equal to b"
else
   echo "a is not equal to b"
fi
```

OR

Q2. Write a shell script to find divisors of number

```
#!/bin/bash
echo "Enter number:"
read number

echo "Divisors of $number:"
for ((i=1; i<=$number; i++)); do
   if [ $((number%i)) -eq 0 ]; then
      echo $i
   fi
done
```

Q1. A) Write and execute the following Commands on Linux

i) Display calendar of month April 2020.

```
cal april 2020
```

ii) Create a file one.txt which contains id, name, designation, Address using Linux command.

```
Cat > one.txt
Id 123
Name abc
Designation software engineer
Address pune
```

iii) Create any text file and count number of bytes, words and lines in file.

```
cat > a.txt
wc -c a.txt
wc -w a.txt
wc -l a.txt
```

iv) Create file as follows and write commands for same.

Linux

Unix

Solaris

HPUX

AIX

Write a linux command to join all lines separated by tab.

```
cat > a.txt
Paste -s a.txt
```

v) Write Vi command to delete first n lines.

```
1,nd
```

Q1. B) Write a shell script to calculate simple interest.

```
#!/bin/bash
echo "Enter principle:"
read P
echo "Enter time:"
read T
echo "Enter rate:"
read R
SI=$(( (P * T * R) / 100 ))
echo "Simple Interest: $SI"
```

Q2. Write a shell script to accept two numbers check which is greater.

```
#!/bin/bash

echo "Enter the first number:"
read num1
echo "Enter the second number:"
read num2

if [ $num1 -gt $num2 ]; then
   echo "$num1 is greater than $num2"
elif [ $num1 -lt $num2 ]; then
   echo "$num2 is greater than $num1"
else
   echo "Both numbers are equal"
fi
```

OR

Q2. Write a shell script to find number is palindrome or not.

```
#!/bin/bash
echo -n "Enter a number: "
read num
original_num=$num
rev=0

while [ $num -gt 0 ]; do
   remainder=$(( $num % 10 ))
   rev=$(( $rev * 10 + $remainder ))
   num=$(( $num / 10 ))
done

if [ $original_num -eq $rev ]; then
   echo "$original_num is a palindrome."
else
   echo "$original_num is not a palindrome."
Fi
```

```
#!/bin/bash
read -p "Enter a number: " num
reverse=$(echo "$num" | rev)
if [ "$num" = "$reverse" ]; then
   echo "$num is a palindrome."
else
   echo "$num is not a palindrome."
fi
```

Q1. A) Write and execute the following Commands on Linux

i) Create two files a.txt and b.txt and copy both the files in c.txt.

```
cat a.txt
cat b.txt
cat c.txt
cat a.txt b.txt >> c
```

ii) Display last modification time for particular file.

```
stat -c %y a.txt
```

iii) Create a file file1.txt

1: Pooja

2: Neeta

3: Vinit

4: Divya

Write command to sort this file in reverse order.

```
cat > file1.txt
sort -r file1.txt
```

iv) Create the following text file a.txt and write commands based on it

This is line 1 UNIX UNIX

This is line 2 unix

This is line 3 Unix Unix

This is line 4 hello

Write a linux command to display lines that search pattern “unix”.

```
cat > a.txt
grep “unix” a.txt
```

v) Write Vi command to join any two lines together.

```
shift + j
```

Q1.B) Write a shell script to find area and perimeter of rectangle.

```
#!/bin/bash

echo "Enter length:"
read length

echo "Enter breadth:"
read breadth

echo "Area: $(($length * $breadth))"
echo "Perimeter: $((2 * $length + 2 * $breadth))"
```

Q2. Write a shell script to display “ Good Morning”, “ Good afternoon” , and “Good Evening” depending on the hour .

```
#!/bin/bash

time=$(date +%H)
echo "Given time is $time"

if [ "$time" -ge 0 ] && [ "$time" -lt 12 ]; then
   echo "Good Morning"
elif [ "$time" -ge 12 ] && [ "$time" -lt 18 ]; then
   echo "Good Afternoon"
else
   echo "Good Evening"
fi
```

Or

Q2 Write a shell script to print multiplication table using command line arguments.

```
#!/bin/bash

number=$1
echo "Multiplication table for $number:"

for (( i=1; i<=10; i++ )); do
   echo "$number x $i = $((number * i))"
done
```

Q1. A) Write and execute the following Commands on Linux

i) Create a file a.txt and move file in b.txt

```
cat > a.txt
cat > b.txt
cat a.txt >> b.txt
```

ii) Display list of all files ending with .txt from current working directory.

```
ls *.txt
```

iii) Create File Biodata.txt print length of longest line in a file.

```
cat > biodata.txt
wc -l biodata.txt
```

iv) Create directory and display only file names in that directory.

```
mkdir fybca
cd fybca
ls
```

v) Write the vi command to recover the file 'student' from system crash.

```
vi /path/to/student
vim -r student
```

Q1.B) Write a shell script to calculate the gross salary.

```
#!/bin/bash
echo "Enter Basic Salary: "
read basic_salary
echo "Enter Allowances: "
read allowances
echo "Enter Deductions: "
read deductions
gross_salary=$((basic_salary + allowances - deductions))
echo "Gross Salary: $gross_salary"
```

Q2. Write a shell script to test a given file and return a message whether the file is a block device, a character device or a normal file.

```
#!/bin/bash

echo "Enter a filename:"
read filename

if [ -b "$filename" ]; then
   status="block"
elif [ -c "$filename" ]; then
   echo "File is character device"
else
   echo "File is normal"
fi
```

Or

Q2. Write a shell script that accepts two integers as its arguments and computers the value of first number raised to the power of the second number.

```
#!/bin/bash

if [ $# -ne 2 ]; then
   echo "Invalid number of arguments"
   exit
fi

pwr=$(echo "$1^$2" | bc)

echo "$1 raised to $2 is: $pwr"
```

Q1. A) Write and execute the following Commands on Linux

i) Write a command to display name of working directory.

```
pwd
```

ii) Accept the file and display that file along with line numbers.

```
echo “Filename”
read filename Wc -l
$filename
```

iii) Create the following text file class.txt and write commands based on it.

FYBCA SCIENCE

SYBCA SCIENCE

TYBCA SCIENCE

FYBCA SCIENCE

Remove duplicate entries from above file.

```
sort class.txt | uniq
```

iv) Create file as follows and write commands for same.

Linux

Unix

Solaris

HPUX

AIX

Write a linux command to merge a file by pasting the data into 2 columns

```
echo -e "Linux\nUnix\nSolaris\nHPUX\nAIX" > myfile.txt
pr -2 -t myfile.txt
```

v) Write the vi command to open ‘faculty’ file in read only mode.

```
vi -R faculty
```

Q1.B) Write a shell script to accept a directory name and display its contents.

```
#!/bin/bash
echo "Enter directory:"
read directory
if [ ! -d "$directory" ]; then
   echo "Error: '$directory' is not a directory or does not exist."
   exit 1
fi
ls "$directory"
```

Q2. Write menu driven program to perform arithmetic operations like +, - , *, /.

```
#!/bin/bash
echo "Enter the first number:"
read a
echo "Enter the second number:"
read b
while true; do
   echo -e "\nChoose an operation:"
   echo "1. Addition"
   echo "2. Subtraction"
   echo "3. Multiplication"
   echo "4. Division"
   echo "5. Exit"
   read -p "Enter your choice: " choice

   case $choice in
      1)
         echo "Result of addition: $(($a + $b))"
         ;;
      2)
         echo "Result of subtraction: $(($a - $b))"
         ;;
      3)
         echo "Result of multiplication: $(($a * $b))"
         ;;
      4)
         if [ $b -ne 0 ]; then
            echo "Result of division: $(($a / $b))"
         else
            echo "Error: Division by zero"
         fi
         ;;
      5)
         echo "Exiting..."
         exit 0
         ;;
      *)
         echo "Invalid choice. Please enter a number between 1 and 5."
         ;;
   esac
done
```

Or

Q2. Write a shell script to display first 10 odd numbers and their sum.

```
#!/bin/bash  sum=0
echo "First 10 odd numbers:"
for ((i = 1; i <= 19; i += 2)); do
   echo $i
   sum=$((sum + i))
done
echo "Sum of the first 10 odd numbers: $sum"
```

Q1. A) Write and execute the following Commands on Linux

i) Display the calendar for the current month.

cal <current month>

ii) Concatenate two files a.txt, b.txt into third file c.txt

cat a.txt b.txt > c.txt

iii) Create the following text file a.txt and write commands based on it

WELCOME TO OSTECHNIX

WELCOME TO OSTECHNIX

LINUS IS THE CREATOR OF LINUX.

LINUX IS SECURE BY DEFAULT

Write a Linux command to display number of occurrences of each line in a file.

sort <file_name> | uniq –c

iv) Create two file Solaris.txt and Eclipse.txt to specify a delimiter for sequential Merging of files.

```
echo "Solaris" > Solaris.txt
echo "Eclipse" > Eclipse.txt
```

v) Write the VI command to save file and quite.

:wq

Q1.B) Write a shell script to find area of circle by accepting input radius

```
echo "Please enter the radius of the circle:"
read radius

area=$(echo "3.14159 * $radius * $radius" | bc)

echo "The area of the circle with radius $radius is: $area"
```

Q2. Write a shell script that accept directory name, if directory does not exist then it will create directory of same name.

```
#!/bin/bash

echo "Enter the directory name:"
read dirname

if [ ! -d "$dirname" ]; then
   mkdir "$dirname"
   echo "Directory '$dirname' created successfully."
else
   echo "Directory '$dirname' already exists."
fi
```

Or

Q2. Write a shell script that will report the number of lines in each file within the current directory.

```
#!/bin/bash

for file in *; do
   if [ -f "$file" ]; then
      lines=$(wc -l < "$file")
      echo "$file: $lines lines"
   fi
done
```

Q1. A) Write and execute the following Commands on Linux

i) Display last modification and access time of particular file.

stat <filename>

ii) Write linux command to Open Last Edited File.

ls -t | head -n 1 | xargs xdg-open

iii) Create the following text file and write commands based on it

UNIX OPERATING SYSTEM

UNIX OPERATING SYSTEM

UNIX DEDICATED SERVER

LINUX DEDICATED SERVER

Write a linux command to display only duplicate lines

cat>file.txt

sort <file_name> | uniq -d

iv) Create a file and search a string case insensitively in the give file.

cat>example.txt

grep -i example.txt

v) Write a line 'welcome to operating system' and then write a vi command to Deletes the current line.

:dd

Q1.B) Write a shell script to show the list of users logged into the system.

```
#!/bin/bash
echo "List of users logged into the system:"
who
```

Q2. Write a shell script to accept as argument an extension name such as .txt and move the contents of all files with this extension to a directory by the same name.

Or

Q2. Write a shell script that accepts any number of arguments and prints them in a reverse order.

```
#!/bin/bash
if [ $# -eq 0 ]; then
   echo "No arguments provided."
   exit 1
fi
args=("$@")
for (( i=${#args[@]}-1; i>=0; i-- )); do
   echo "${args[i]}"
done
```

Q1. A) Write and execute the following Commands on Linux

i) Create a file student.txt. Display first 5 lines of student.txt.

```
cat > student.txt
head -n 5 student.txt
```

ii) Write a command to display contents of file in reverse order.

```
tac filename.txt
```

iii) Count number of files in current working directory.

```
ls | wc –l
```

iv) Consider the below file as an input.

$cat > geekfile.txt

Unix is great os. unix is opensource. unix is free os. Unix linux which one you choose.

Unix is easy to learn.unix is a multiuser os.Learn unix .unix is a powerful.

Find the number of lines that matches the pattern “unix”

```
grep -c "unix" filename.txt
```

v) Write a line ‘welcome to operating system’ then write a vi command to deletes 2 words beginning with ‘e’ from welcome word.

```
dw
```

Q1.B) Write a shell script to print out the length of longest (number of characters) line in a file.

```
#!/bin/bash

echo "Enter file:"
read filename

longest_length=$(awk '{ if (length > max) max = length } END { print max }' "$filename")

echo "Length of the longest line in '$filename': $longest_length"
```

Q2. Write a shell script that accepts file name as argument and converts all of them to uppercase, provided they exist in the current directory.

```
#!/bin/bash

for file in "$@"; do
   if [ -f "$file" ]; then
      mv "$file" "$(echo "$file" | tr '[:lower:]' '[:upper:]')"
      echo "File '$file' converted to uppercase."
   else
      echo "File '$file' does not exist or is not a regular file."
   fi
done
```

Or

Q2. Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.

```
#!/bin/bash
file="$1"
word="$2"

echo "File before removing the word \"$word\":"
cat "$file"

sed -i "/$word/d" "$file"

echo "File after removing the word \"$word\":"
cat "$file"
```

Q1. A) Write and execute the following Commands on Linux

i) Create a subdirectory in the directory created.

```
mkdir subdirectory
```

ii) Accept the file and display that file along with line numbers.

```
cat -n filename
```

iii) Assume the below contents of file1.txt

Priya

Tuhina

Tushar

Shreya

Sort the above file in alphabetical order.

```
sort file1.txt
```

iv) Create file as follows and write commands for same.

$ cat file.txt

unix or linux os

is unix good os

is linux good os

Create a file and display field from first to fourth of each line from the file.

```
echo "unix or linux os" > file.txt
echo "is unix good os" >> file.txt
echo "is linux good os" >> file.txt
awk '{print $1, $2, $3, $4}' file.txt
```

v) Type the following sentences:
Welcome to BCA science department.
This is FYBCA class.
The class strength is 80.
Now delete first 2 lines from this sentences using vi command

Q1. B) Write a shell script to display file in reverse order.

```
#!/bin/bash

if [ $# -ne 1 ]; then
   echo "Usage: $0 <filename>"
   exit 1
fi

tac "$1"
```

Q2. Write a shell script to check whether given number is odd or even.

```
#!/bin/bash

echo "Enter a number:"
read number

if [ $((number % 2)) -eq 0 ]; then
   echo "$number is even."
else
   echo "$number is odd."
fi
```

Or

Q2. Write a shell script to find sum of digits.

```
#!/bin/bash
echo "enter num"
read num
sum=0
while [ $num -gt 0 ]
do
      digit=$((num%10))
      echo "$digit"
      sum=$((sum+digit))
      num=$((num/10))
done
echo "sum of digit:$sum"
```

Q1. A) Write and execute the following Commands on Linux

i) Display last 5 lines of a.txt

```
tail -n 5 a.txt
```

ii) Display last modification time for particular file.

```
stat -c "%y" filename
```

iii) Create any text file and count number of bytes, words and lines.

```
echo "This is a sample text file." > myfile.txt
wc myfile.txt
```

vi) Create two file having name as state.txt and capital.txt. Each file contain 3 names of the Indian states and capitals respectively. Write a linux command to merge the files in sequentially manner.

```
paste state.txt capital.txt
```

iv) Write a vi command to undo the last command.

```
u
```

Q1.B) Write a shell script to find size of given file

```
#!/bin/bash

echo "Enter the filename:"
read filename

if [ -f "$filename" ]; then
   size=$(stat -c "%s" "$filename")
   echo "Size of '$filename': $size bytes"
else
   echo "Error: File '$filename' not found."
fi
```

Q2. Write a shell script to check whether given number is Palindrome or not.

```
#!/bin/bash
echo -n "Enter a number: "
read num
original_num=$num
rev=0

while [ $num -gt 0 ]; do
   remainder=$(( $num % 10 ))
   rev=$(( $rev * 10 + $remainder ))
   num=$(( $num / 10 ))
done

if [ $original_num -eq $rev ]; then
   echo "$original_num is a palindrome."
else
   echo "$original_num is not a palindrome."
Fi
```

Or

Q2. Write a shell script to print multiplication table using command line arguments

```
#!/bin/bash

number=$1
echo "Multiplication table for $number:"

for (( i=1; i<=10; i++ )); do
   echo "$number x $i = $((number * i))"
done
```

Q1. A) Write and execute the following Commands on Linux

i) Display calendar for March 2020.

```
cal march 2020
```

ii) Create a file File1.txt and display all information about file.

```
touch file1.txt
ls -l File1.txt
```

iii) Create the following example.txt file

cat example.txt

Unix operating system

unix operating system

unix dedicated server

linux dedicated server

Write command to suppress the duplicate line.

```
cat > example.txt
uniq example.txt
```

iv) Create a file and merge the contents into single line with each line separated by tab.

```
echo -e "Line 1\nLine 2\nLine 3" | tr '\n' '\t' > merged_file.txt
```

v) Write a line 'welcome to operating system' and then write a vi command to deletes the current line.

Q1.B) Write a shell script to accept a directory name and display its contents.

```
#!/bin/bash
echo "Enter directory:"
read directory
if [ ! -d "$directory" ]; then
   echo "Error: '$directory' is not a directory or does not exist."
   exit 1
fi
ls "$directory"
```

Q2. Write menu driven program to perform arithmetic operations like +, - , *, /.

```
#!/bin/bash
echo "Enter the first number:"
read a
echo "Enter the second number:"
read b
while true; do
   echo -e "\nChoose an operation:"
   echo "1. Addition"
   echo "2. Subtraction"
   echo "3. Multiplication"
   echo "4. Division"
   echo "5. Exit"
   read -p "Enter your choice: " choice

   case $choice in
      1)
         echo "Result of addition: $(($a + $b))"
         ;;
      2)
         echo "Result of subtraction: $(($a - $b))"
         ;;
      3)
         echo "Result of multiplication: $(($a * $b))"
         ;;
      4)
         if [ $b -ne 0 ]; then
            echo "Result of division: $(($a / $b))"
         else
            echo "Error: Division by zero"
         fi
         ;;
      5)
         echo "Exiting..."
         exit 0
         ;;
      *)
         echo "Invalid choice. Please enter a number between 1 and 5."
         ;;
   esac
done
```

Or

Q2. Write a shell script to display odd numbers and their sum.

```
#!/bin/bash  sum=0
echo "First 10 odd numbers:"
for ((i = 1; i <= 19; i += 2)); do
   echo $i
   sum=$((sum + i))
done
echo "Sum of the first 10 odd numbers: $sum"
```

Q1. A) Write and execute the following Commands on Linux

i) Create a file student.txt. Display first 5 lines of student.txt.

```
cat > student.txt
head -n 5 student.txt
```

ii) Create a file one.txt which contains id, name, designation, Address using Linux command.

```
Cat > one.txt
Id 123
Name abc
Designation software engineer
Address pune
```

iii) Create any text file and count number of bytes, words and lines in file. Display longest length in file.

```
wc myfile.txt
awk '{ if (length > max) max = length } END {
print "Longest length:", max }' myfile.txt
```

iv) Create file as follows and write commands for same.

Linux Unix Solaris HPUX AIX

Write a linux command to merge a file by pasting the data into 2 columns

```
echo -e "Linux\nUnix\nSolaris\nHPUX\nAIX"
> myfile.txt
pr -2 -t myfile.txt
```

v) Write a control vi command to Moves screen up one line.

```
Ctrl-y
```

Q1.B) Write a shell script to accept a file name and display number of words in a file.

```
#!/bin/bash
filename="$1"
if [ ! -f "$filename" ]; then
   echo "Error: File '$filename' not found."
   exit 1
fi
num_words=$(wc -w < "$filename")
echo "Number of words in '$filename':
$num_words"
```

Q2. Write a shell script to check greatest number among 3 numbers**.**

```
#!/bin/bash
echo "Enter the first number:"
read num1
echo "Enter the second number:"
read num2
echo "Enter the third number:"
read num3

if [ $num1 -gt $num2 ] && [ $num1 -gt $num3 ]; then
   echo "$num1 is the greatest number."
elif [ $num2 -gt $num1 ] && [ $num2 -gt $num3 ];
then
   echo "$num2 is the greatest number."
else
   echo "$num3 is the greatest number."
fi
```

Or

Q2. Write a shell script to find factorial of number.

```
#!/bin/bash
echo "enter a number"
read number
fact=1
for ((i=2;i<=$number;i++))
{
        fact=$((fact * i))
}
echo "factorial of number is $fact"
```

Q1. A) Write and execute the following Commands on Linux

i) Display the current date and time.

```
cal
date
```

ii) Display list of all files ending with .txt from current working directory.

```
ls *.txtx
```

iii) Count the number of files in current working directory.

```
ls -l | wc –l
```

iv) Create two file having name as state.txt and capital.txt. Each file contains 3 names of the Indian states and capitals respectively. Write a linux command to merge the files in sequentially manner.

```
paste state.txt capital.txt > merged_file.txt
```

v) Write a control vi command to Move Forward one full screen.

```
Ctrl-f
```

Q1. B) Write a shell script to evaluate basic arithmetic operations.

```
#!/bin/bash

echo "Enter the first number:"
read a
echo "Enter the second number:"
read b

echo "Addition: $(expr $a + $b)"
echo "Subtraction: $(expr $a - $b)"
echo "Multiplication: $(expr $a \* $b)"
echo "Division: $(expr $a / $b)"
```

Q2. Write a shell script to check whether two numbers are same or different.

```
#!/bin/bash

echo "Enter a:"
read a

echo "Enter b:"
read b

if [ $a -eq $b ]; then
   echo "a is equal to b"
else
   echo "a is not equal to b"
fi
```

Or

Q2 Write a shell script to find factorial of number.

```
#!/bin/bash
echo "enter a number"
read number
fact=1
for ((i=2;i<=$number;i++))
{
        fact=$((fact * i))
}
echo "factorial of number is $fact"
```

Q1. A) Write and execute the following Commands on Linux

i) Display text "Good Morning" using command.

```
echo "Good Morning"
```

ii) Write a command to display contents of file in reverse order

```
tac filename
```

iii) Redirect output of long listing of directories in abc.txt

```
ls -l /path/to/directory > abc.txt
```

Replace /path/to/directory with the path of the directory you want to list

iv) Create file as follows and write commands for same.

Student Fruits

Write a linux command to merge a file by pasting the data into 2 columns using a colon separator.

```
echo "Student" > Student
echo "Fruits" > Fruits
paste -d ":" Student Fruits
```

v) Create a file by Inputdevices.txt with least 5 lines long using vi editor's input commands and try the following using Vi commands.

```
vi Inputdevices.txt
```

Move cursor to first line in the file `gg`

Q1. B) Write a shell script to calculate simple interest.

```
#!/bin/bash
echo "Enter principle:"
read P
echo "Enter time:"
read T
echo "Enter rate:"
read R
SI=$(( (P * T * R) / 100 ))
echo "Simple Interest: $SI"
```

Q2. Write a shell script to accept three number greatest from that.

```
#!/bin/bash
echo "Enter the first number:"
read num1
echo "Enter the second number:"
read num2
echo "Enter the third number:"
read num3

if [ $num1 -gt $num2 ] && [ $num1 -gt $num3 ]; then
   echo "$num1 is the greatest number."
elif [ $num2 -gt $num1 ] && [ $num2 -gt $num3 ];
then
   echo "$num2 is the greatest number."
else
   echo "$num3 is the greatest number."
fi
```

Or

Q2 Write a shell script to display even numbers between two numbers**.**

```
#!/bin/bash

echo "Enter the starting number:"
read start_num

echo "Enter the ending number:"
read end_num

echo "Even numbers between $start_num and
$end_num are:"

for (( i=start_num; i<=end_num; i++ )); do
   if (( i % 2 == 0 )); then
      echo "$i"
   fi
done
```

Q1. A) Write and execute the following Commands on Linux

i) Give list of users were logged onto your system.

```
who
```

ii) Create a two files and append the contents of one file to the end of another file.

```
touch file1.txt file2.txt
echo "Contents of file1" > file1.txt
echo "Contents of file2" > file2.txt
cat file2.txt >> file1.txt
```

iii) Create the following text file a.txt and write commands based on it.

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Unix distributed 05 server

Distributed processing 6 system

Sort the above file in numerical order

```
sort -n a.txt
```

iv) Create two file Solaris.txt and Eclipse.txt to specify a delimiter for sequential Merging of files.

```
touch Solaris.txt Eclipse.txt
```

v) Create a file by Input devices.txt with least 5lines long using vi editor's input Commands and try the following using Vi commands. Move cursor to 3-line no

```
vi "Input devices.txt"
:3
```

Q1.B) Write a shell script to find area and perimeter of rectangle.

```
#!/bin/bash

echo "Enter length:"
read length

echo "Enter breadth:"
read breadth

echo "Area: $(($length * $breadth))"
echo "Perimeter: $((2 * $length + 2 * $breadth))"
```

Q2. Write menu driven program to perform the following tasks

a) Show today's date and time
b) Show files in current working directory.
c) Show calendar

```
#!/bin/bash
echo '\tMenu Implementation'
echo ----------------------------------------
echo 1.Today DATE
echo 2.files of the system
echo 3.Show calendar
echo Enter your choice
read choice
case $choice in
1)date;;
2)ls;;
3)cal;;
*)echo This is not a choice
esac
```

Or

Q2 Write a shell script to print multiplication table using command line arguments.

```
#!/bin/bash

number=$1
echo "Multiplication table for $number:"

for (( i=1; i<=10; i++ )); do
    echo "$number x $i = $((number * i))"
done
```

Q1. A) Write and execute the following Commands on Linux

i) Create directory assignment1 and rename it to One.txt.

```
mkdir assignment1
mv assignment1 One.txt
```

ii) Create a two files and append the contents of one file to the end of another file.

```
cat file2.txt >> file1.txt
```

iii) Create any text file and count number of bytes, words, lines and length of longest line in file.

```
wc testfile.txt
awk '{ print length($0) " - " $0 | "sort -n | tail -1" }' testfile.txt
```

iv) Consider the below file as an input.

$cat > geekfile.txt

unix is great os. unix is open source. unix is free os. Unix linux which one you choose.

uNix is easy to learn.unix is a multiuser os. Learn unix . unix is a powerful.

find the number of lines that matches the pattern "unix"

```
grep -o 'unix' geekfile.txt | wc -l
```

v) Create a file name '……'containing five lines and execute the following set of commands of vi editor and describe the result on the paper.Command R and D

```
Press 'R' to enter replace mode.
Press 'D' to delete the current line.
```

Q1.B) Write a shell script to calculate the gross salary.

```
#!/bin/bash
echo "Enter Basic Salary: "
read basic_salary
echo "Enter Allowances: "
read allowances
echo "Enter Deductions: "
read deductions
gross_salary=$((basic_salary + allowances - deductions))
echo "Gross Salary: $gross_salary"
```

Q2. Write menu driven program to perform the following tasks

a) Show today's date and time
b) Show files in current working directory.
c) Show calendar

```
#!/bin/bash
echo '\tMenu Implementation'
echo ----------------------------------------
echo 1.Today DATE
echo 2.files of the system
echo 3.Show calendar
echo Enter your choice
read choice
case $choice in
1)date;;
2)ls;;
3)cal;;
*)echo This is not a choice
esac
```

Or

Q2. Write a shell script that accepts two integers as its arguments and computers the value of first number raised to the power of the second number.

```
#!/bin/bash

if [ $# -ne 2 ]; then
   echo "Invalid number of arguments"
   exit
fi

pwr=$(echo "$1^$2" | bc)

echo "$1 raised to $2 is: $pwr"
```

Q1. A) Write and execute the following Commands on Linux

i) Create a 2 directories RDBMS and CO. Move these directories to directory FYBCA.

```
mkdir RDBMS CO
mkdir FYBCA
mv RDBMS CO FYBCA
```

ii) Create a file File1.txt and display all information about file.

```
touch File1.txt
ls -l File1.txt
```

iii) Create a file and sort the file by suppressing repeated lines.

```
echo -e "line1\nline2\nline1\nline3\nline2" > file.txt
sort -u file.txt
```

iv) Create a file and merge the contents into single line with each line separated by tab.

```
echo -e "line1\nline2\nline3\nline4\nline5" > file.txt
paste -s file.txt
```

vi) Create a file by Input devices.txt with least 5lines long using vi editor's input commands and try the following using Vi commands. Moves the cursor down one line

```
vi "Input devices.txt"
j
```

Q1.B) Write a shell script to view contents of a file preceding with line numbers.

```
#!/bin/bash
if [ $# -ne 1 ]; then
   echo "Usage: $0 <filename>"
   exit 1
fi
if [ ! -f "$1" ]; then
   echo "File $1 does not exist."
   exit 1
fi
nl "$1"
```

Q2. Write menu driven program to perform the following tasks

a) Displaying contents of file
b) Copying file into another file
d) Displaying files in directory

Or

Q2. Write a shell script to display first 10 odd numbers and their sum.

```
#!/bin/bash  sum=0
echo "First 10 odd numbers:"
for ((i = 1; i <= 19; i += 2)); do
   echo $i
   sum=$((sum + i))
done
echo "Sum of the first 10 odd numbers: $sum"
```

Q1. A) Write and execute the following Commands on Linux

i) Create a directory named FYBCA under that create a 1 directory OS. Create fileunder subdirectories OS.

```
mkdir -p FYBCA/OS
touch FYBCA/OS/file.txt
```

ii) Write linux command to Open Last Edited File.

```
ls -t | head -n 1 | xargs xdg-open
```

iii) Create the following text file class.txt and write commands based on it.

Fybca science Sybca science Tybca science Fybca science

Remove duplicate entries from above file.

```
sort -u class.txt -o class.txt
```

iv) Create file as follows and write commands for same.

Student Fruits

Write a linux command to merge a file by pasting the data into 2 columns using a colon separator

```
echo -e "Student\nFruits" > file.txt
paste -d ":" file.txt file.txt
```

v) Create a file by Inputdevices.txt with least 5 lines long using vi editor's input commands and try the following using Vi commands.

Search the keyword "dev" from a file.

```
vi Inputdevices.txt
/\<dev\>
```

Q1.B) Write a shell script to find area of circle by accepting input radius.

```
echo "Please enter the radius of the circle:"
read radius

area=$(echo "3.14159 * $radius * $radius" | bc)

echo "The area of the circle with radius $radius is: $area"
```

Q2. Write a shell script that computes the gross salary of a employee according to the following rules:

i) If basic salary is < 1500 then HRA =10% of the basic and DA =90% of the basic.

ii) If basic salary is >=1500 then HRA =Rs500 and DA=98% of the basic

```
echo "enter the basic salary:"
read bsal
if [ $bsal -lt 1500 ]
then
gsal=$((bsal+((bsal/100)*10)+(bsal/100)*90))
echo "The gross salary : $gsal"
fi
if [ $bsal -ge 1500 ]
then
gsal=$(((bsal+500)+(bsal/100)*98))
echo "the gross salary : $gsal"
fi
```

Or

Q2. Write a shell script that will report the number of lines in each file within the current directory.

```
#!/bin/bash

for file in *; do
   if [ -f "$file" ]; then
      lines=$(wc -l < "$file")
      echo "$file: $lines lines"
   fi
done
```

Q1. A) Write and execute the following Commands on Linux

i) Display last 5 lines of College.txt

```
tail -n 5 College.txt
```

ii) Display list of all files ending with .txt from current working directory.

```
ls *.txt
```

iii) Create the following text file a.txt and write commands based on it.

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Sort the above file on second field

```
sort -k2 a.txt.
```

iv) Create file as follows and write commands for same.

$ cat assignment.txt unix or linux os

is unix good os is linux good os

Write a linux command that prints the second field in each line by treating the space as delimiter.

```
awk '{print $2}' assignment.txt
```

v) Write a control command Moves screen down one line.

```
Ctrl+F
j
```

Q1.B) Write a shell script to show the list of users logged into the system.

```
#!/bin/bash
echo "List of users logged into the system:"
who
```

Q2. Write a shell script that accepts a file name, starting and ending line numbers as arguments and displays all the lines between the given line numbers.

```
#!/bin/bash

if [ $# -ne 3 ]; then
   echo "Usage: $0 <file_name> <start_line_number> <end_line_number>"
   exit 1
fi

file_name=$1
start_line=$2
end_line=$3

if [ ! -f "$file_name" ]; then
   echo "File $file_name does not exist."
   exit 1
fi

if [ "$start_line" -gt "$end_line" ]; then
   echo "Start line number cannot be greater than end line number."
   exit 1
fi
sed -n "${start_line},${end_line}p" "$file_name"
```

Or

Q2. Write a shell script that accepts any number of arguments and prints them in a reverse order.

```
#!/bin/bash
for((i=$#; i>0; i--)); do
        echo "${!i}"
   done
```

Q1. A) Write and execute the following Commands on Linux

i) Prepare two text files and check output of cmp commands.

```
cmp file1.txt file2.txt
```

ii) Accept the file and display that file along with line numbers.

```
#!/bin/bash
echo "Enter the name of the file:"
read filename
nl "$filename"
```

iii) Count number of files in current working directory.

```
ls | wc –l
```

iv) Create file as follows and write commands for same.

$ cat file.txt unix or linux os is unix good os is linux good os

Write a linux command to print characters of 4th position.

```
cut -c 4 file.txt
```

v) Create a file by name My_country.txt with least 5lines long using VI editor's input commands and try the following using Vi commands. Move to the first line of the file.

```
vi My_country.txt
gg
```

Q1.B) Write a shell script to print out the length of longest (number of characters) line in a file.

```
#!/bin/bash

echo "Enter file:"
read filename

longest_length=$(awk '{ if (length > max) max = length } END { print max }' "$filename")

echo "Length of the longest line in '$filename': $longest_length"
```

Q2. Write menu driven program to perform the following tasks

a) Create directory
b) Creating file
c) Displaying contents of file

Or

Q2. Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.

```
#!/bin/bash
file="$1"
word="$2"

echo "File before removing the word \"$word\":"
cat "$file"

sed -i "/$word/d" "$file"

echo "File after removing the word \"$word\":"
cat "$file"
```

Q1. A) Write and execute the following Commands on Linux

i) Display first 5 lines of Student.txt

```
head -n 5 Student.txt
```

ii) Display list of all files ending with .txt from current working directory.

```
ls *.txt
```

iii) Create the following text file a.txt and write commands based on it.

Unix distributed 05 server Linux virtual

3 server Unix distributed 05 server

Distributed processing 6 system

Sort the above file on second and fourth filed on reverse order.

```
sort -k2,2r -k4,4r a.txt
```

iv) Create two file Solaris.txt and Eclipse.txt to specify a delimiter for sequential Merging of files.

```
touch Solaris.txt Eclipse.tx
```

v) Create a file by name My_country.txt with least 25lines long using VI editor's input commands and try the following using VI commands replace each occurrence of word "College" with Institute.

```
vi My_country.txt
:%s/College/Institute/g
```

Q1. B) Write a shell script to accept a file name and display its contents.

```
#!/bin/bash
if [ $# -ne 1 ]; then
   echo "Usage: $0 <file_name>"
   exit 1
fi

file_name=$1

if [ ! -f "$file_name" ]; then
   echo "File $file_name does not exist."
   exit 1
fi
cat "$file_name"
```

Q2. Write a shell script to check whether given number is odd or even.

```
#!/bin/bash

echo "Enter a number:"
read number

if [ $((number % 2)) -eq 0 ]; then
   echo "$number is even."
else
   echo "$number is odd."
fi
```

Or

Q2. Write a shell script to find reverse of number

```
#!/bin/bash

if [ $# -ne 1 ]; then
   echo "Usage: $0 <number>"
   exit 1
fi

number=$1
reverse=0

while [ $number -gt 0 ]; do
   remainder=$(( $number % 10 ))
   reverse=$(( $reverse * 10 + $remainder ))
   number=$(( $number / 10 ))
done

echo "Reverse of the number: $reverse"
```

Q1. A) Write and execute the following Commands on Linux

i) Copy the file MyFile.txt to MyFile1.txt

```
cp MyFile.txt MyFile1.txt
```

ii) Create a file file.txt and display file size in human readable format.

```
touch file.txt
ls -lh file.txt
```

iii) Create the following text file a.txt and write commands based on it.

Unix distributed 05 server Linux virtual 3 server Unix distributed 05 server Distributed processing 6 system

Write a linux command to display number of occurrences of each line in a file.

```
sort a.txt | uniq -c
```

iv) Create the following text file a.txt and write commands based on it

welcome to ostechnix welcome to ostechnix

Linus is the creator of Linux. Linux is secure by default

Write a linux command to display lines that contains starting letter L and ending with letter x.

```
grep -i '^L.*x$' a.txt
```

v) Write Vi command to join any two lines together.

```
Shift+J
```

Q1.B) Write a shell script to print out the length of longest (number of characters) line in a file.

```
#!/bin/bash

echo "Enter file:"
read filename

longest_length=$(awk '{ if (length > max) max = length } END { print max }' "$filename")

echo "Length of the longest line in '$filename': $longest_length"
```

Q2. Write a shell script to check whether given number is Palindrome or not.

```
#!/bin/bash
echo -n "Enter a number: "
read num
original_num=$num
rev=0

while [ $num -gt 0 ]; do
   remainder=$(( $num % 10 ))
   rev=$(( $rev * 10 + $remainder ))
   num=$(( $num / 10 ))
done

if [ $original_num -eq $rev ]; then
   echo "$original_num is a palindrome."
else
   echo "$original_num is not a palindrome."
Fi
```

Or

Q2 Write a shell script to print multiplication table using command line arguments.

```
#!/bin/bash

number=$1
echo "Multiplication table for $number:"

for (( i=1; i<=10; i++ )); do
   echo "$number x $i = $((number * i))"
done
```

Q1. A) Write and execute the following Commands on Linux

i) Create file student.txt and display size of file in bytes.

```
touch student.txt
stat -c %s student.txt
```

ii) Count number of files in current working directory.

```
ls -l | grep -v '^d' | wc -l
```

iii) Redirect output of long listing of directories in abc.txt

```
ls -l > abc.txt
```

iv) Create file as follows and write commands for same.

Linux Unix Solaris HPUX AIX

Write a linux command to merge a file by pasting the data into 2 columns

```
paste - - < file.txt
```

v) Write vi command to delete first n lines.

```
ndd
```

Q1.B) Write a shell script to accept a file name and display its contents.

```
#!/bin/bash
if [ $# -ne 1 ]; then
   echo "Usage: $0 <file_name>"
   exit 1
fi

file_name=$1

if [ ! -f "$file_name" ]; then
   echo "File $file_name does not exist."
   exit 1
fi
cat "$file_name"
```

Q2. Write menu driven program to perform arithmetic operations.

```
#!/bin/bash
echo "Enter the first number:"
read a
echo "Enter the second number:"
read b

while true; do
   echo -e "\nChoose an operation:"
   echo "1. Addition"
   echo "2. Subtraction"
   echo "3. Multiplication"
   echo "4. Division"
   echo "5. Exit"
   read -p "Enter your choice: " choice

   case $choice in
      1)
         echo "Result of addition: $(($a + $b))"
         ;;
      2)
         echo "Result of subtraction: $(($a - $b))"
         ;;
      3)
         echo "Result of multiplication: $(($a * $b))"
         ;;
      4)
         if [ $b -ne 0 ]; then
            echo "Result of division: $(($a / $b))"
         else
            echo "Error: Division by zero"
         fi
         ;;
      5)
         echo "Exiting..."
         exit 0
         ;;
      *)
         echo "Invalid choice. Please enter a number
between 1 and 5."
         ;;
   esac
done
```

Or

Q2. Write a shell script to display odd numbers and their sum.

```
#!/bin/bash  sum=0
echo "First 10 odd numbers:"
for ((i = 1; i <= 19; i += 2)); do
   echo $i
   sum=$((sum + i))
done
echo "Sum of the first 10 odd numbers: $sum"
```

Q1. A) Write and execute the following Commands on Linux

i) Display the calendar for the current month.
cal

ii) Display all files in current working directory
ls

iii) Create the following text file a.txt and write commands based on it.

Unix distributed 05 server Linux virtual 3 server Unix distributed 05 server Distributed processing 6 system
Sort the above file on second field.
sort -k2 a.txt

iv) Create file as follows and write commands for same.
$ cat file.txt unix or linux os is unix good os is linux good os
Create a file and display field from first to fourth of each line from the file.

```
cut -d ' ' -f1-4 file.txt
```

v) Write Vi command to copy first three lines and paste after sixth line.

```
:1,3t6
```

Q1.B) Write a shell script to accept filename from user and display number of words from file.

```
#!/bin/bash
echo “enter filename”
read filename
wc -w $filename
```

Q2. Write a shell script to check greatest number among 3 numbers.

```
#!/bin/bash
echo "Enter the first number:"
read num1
echo "Enter the second number:"
read num2
echo "Enter the third number:"
read num3

if [ $num1 -gt $num2 ] && [ $num1 -gt $num3 ]; then
   echo "$num1 is the greatest number."
elif [ $num2 -gt $num1 ] && [ $num2 -gt $num3 ];
then
   echo "$num2 is the greatest number."
else
   echo "$num3 is the greatest number."
fi
```

Or

Q2. Write a shell script to find factors of number.

```
#!/bin/bash

if [ $# -ne 1 ]; then
   echo "Usage: $0 <number>"
   exit 1
fi

number=$1

echo "Factors of $number are:"
for (( i=1; i<=$number; i++ )); do
   if [ $((number % i)) -eq 0 ]; then
      echo $i
   fi
done
```