# LINUX ASSIGNMENTS QUESTIONS 2018

### 1.a.) How to perform calculation directly from terminal? Which command is used ??

**Answer:**

**gcalccmd** commands performs calculations directly through terminal.

### 1.b) How to set limit of numbers to display after particular constant (say pi) ?

**Answer:**

Let if we want to print value of pi upto 5 places of decimal then:

**echo "scale=5; 4*a(1)" | bc -l**

**Output :** 3.14159

### 2.a.) Write a program to implement binary search using shell script?

**Answer:**

```
echo “Enter the limit:”
read n
echo “Enter the numbers”
for( ( i=0 ;i<n; i++ ) )
do
read m
a[i]=$m
done
for( ( i=1; i<n; i++ ) )
do
for( ( j=0; j<n-i; j++) )
do
if [ ${a[$j]} -gt ${a[$j+1]} ]
then
t=${a[$j]}
a[$j]=${a[$j+1]}
a[$j+1]=$t
fi
done
done
echo “Sorted array is”
for( ( i=0; i<n; i++ ) )
do
echo “${a[$i]}”
done
```

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```
echo “Enter the element to be searched :”
read s
l=0
c=0
u=$((  $n-1  ))
while [  $l -le $u  ]
do
mid=$((((  $l+$u  ))/2  ))
if [  $s -eq ${a[$mid]}  ]
then
c=1
break
elif [  $s -lt ${a[$mid]}  ]
then
u=$((  $mid-1  ))
else
l=$((  $mid+1  ))
fi
done
if [  $c -eq 1  ]
then
echo “Element found at position $((  $mid+1  ))”
else
echo “Element not found”
fi
```

**2.b) Write a program that takes arguments as command line and perform basic arithmetic operations?**

**Answer:**

```
Clear
sum=0
i="y"
echo " Enter one no."
read n1
echo "Enter second no."
read n2
while [ $i = "y" ]
do
echo "1.Addition"
echo "2.Subtraction"
echo "3.Multiplication"
echo "4.Division"
echo "Enter your choice"
```

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```
read ch
case $ch in
   1)sum=`expr $n1 + $n2`
    echo "Sum ="$sum;;
      2)sum=`expr $n1 - $n2`
    echo "Sub = "$sum;;
   3)sum=`expr $n1 \* $n2`
    echo "Mul = "$sum;;
   4)sum=`expr $n1 / $n2`
    echo "Div = "$sum;;
   *)echo "Invalid choice";;
esac
echo "Do u want to continue ?"
read i
if [ $i != "y" ]
then
   exit
fi
done
```

**3. Commands used for finding memory usage ?**

**Answer:**

**a.)** Free
**b.)** /proc/meminfo
**c.)** Vmstat

**4. Write a command to find a file with particular extension and contains particular word(string) in the file?**

**Answer:**

grep –include=*.{extension} –Rl ./ -e “string”

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**5. Create a directory and move in the directory.Create another directory inside this directory and move in it. write a single command to come out in original directory.**

**Answer:**

**user@ubuntu:~$** mkdir **parent**

**user@ubuntu:~$** cd **parent**

**user@ubuntu:~/parent$** mkdir **child**

**user@ubuntu:~/parent/child$** cd

**user@ubuntu:~$**

These commands will perform the above instructions.

**6. Why linux is more secured than other operating systems?Find certain parameters comparing with other operating systems??**

**Answer:**

**1. Privileges of accounts**

In Windows users by default have access to everything in the system because they are given administrator rights. If the virus will be able to penetrate their system, they can quickly gain access to important parts of the system. On the other hand, in Linux, they have a lower access rights, and, theoretically, the virus can only access local files and folders, the system will remain safe.

**2. Competent community**

Windows and other operating systems are more vulnerabilities to the type of social engineering Ltd compared to Linux. Incompetent users can easily download a virus by simply opening an attachment in e-mail. Of course, this is not the case of Linux, when users are more technically savvy, and are unlikely to access and download such suspicious attachments. They also need to give the rights to execution, so unlikely to happen real damage. Various developers and testers working on Linux, so, as soon as there is some kind of vulnerability, it will be quickly found and fixed, unlike other operating systems.

**3. IPtables**

An even higher level of security on Linux machines is implemented using IPtables. This firewall that allows you to create a more secure environment for the execution of any command or access the network.

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**4. The separateness of the environment**

Linux works in many environments and distros such as Linux Mint, Debian, Ubuntu, Gentoo, Arch, and many others. Various email clients, the environment console and system packages also make the system extremely fragmented and difficult for any virus. The architecture of Windows is not so divided, so a virus could easily reach the many computers of the system which will cause harm to their users.

**5. Recording system events Linux**

Linux accesses to files and system accesses are written to a log file. If someone tries to enter safe system files, these system gaps can be viewed by the system administrator. Also are written to the disk failed login attempts and other security issues, and all this is available to study later.

**6. Less users**

The number of users using Linux is much less in comparison with Windows and Mac OS. As the number of users is smaller, less viruses will strive to hit their computers to gain access to important data.

**7. Write a program to convert symbolic mode into absolute mode?**

**If u are provided with permission of a file in symbolic mode, u need to find octal code for it? Use**

**Shell Script.**

**Answer:**

**8. If you forget password how will you reset it ?**

**Answer:**

**Step 1:** Boot up the machine, and after the BIOS screen, hold down the left Shift key. You will then be prompted by a menu.

**Step 2:** Select the option one with the recovery mode in the description and then hit Enter.

**Step 3:** Now you should see a menu where you have to scroll down using the arrow keys to root and then hit Enter.

**Step 4:** You should now see a root prompt like this:

```
root@ubuntu:~#
```

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**Step 5:** At this stage you should have a read-only filesystem. You have to remount it with write permissions:

**mount -o remount,rw /**

**Step 6:** Now we can set the user's password with the **passwd** command.

**root@ubuntu:~# passwd user@123**

**Enter new UNIX password:**

**Retype new UNIX password:**

**passwd: password updated successfully**

**root@ubuntu:~#**

**Step 7:** Type in what you want the new password to be at the prompt. After it's successful reboot the machine and the user will be able to log in with their new password.

**9.**

**(1). Which command must be used to search the command without knowing its exact name?**

**Answer:**

**man-intro** command will help the user by displaying all the basic commands and its use.

**(2). What is umask?**

**Answer:**

The user file-creation mode mask (umask) is use to determine the file permission for newly created files. It can be used to control the **default file permission for new files**. It is a four-digit octal number. A umask can be set or expressed using:

- Symbolic values
- Octal values

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**(3)a. Write the syntax for the command to delete a non empty directory and simultaneously all the files inside the directory must be deleted.**

**Answer:**

**user@ubuntu:~$** mkdir **parent**

**user@ubuntu:~$** cd **parent**

**user@ubuntu:~/parent$** mkdir **child**

**user@ubuntu:~/parent/child$** cd

**user@ubuntu:~$**

Now **parent** is a folder containing another folder named **child**. This means **parent** folder is a non-empty folder. Now following is the command to delete this non-empty folder:

**user@ubuntu:~$** rm –R **parent**

**(3)b. write the syntax for moving file from anywhere to everywhere (general)?**

**Answer:**

Let there be a file named **file** which is in directory whose path is **source_path** and it is to be transferred to the directory whose path is **dest_path**. Now command for performing this operation will be:

**: user@ubuntu:~$** mv **/source_path/file /dest_path/**

if you want to change the name of file after moving it to desired directory then you can use:

**: user@ubuntu:~$** mv **/source_path/file /dest_path/new_filename**