**Linux Pasco (2017/2018)**

**Answer All Questions**

1. If you are interested in GUI programming in Linux, what two (2) programming language would you use? **4mks**

1) **Java:** Java is one of best when developing applications that will run on practically any relevant operating system, Linux included.

2) **Python:** Because of it’s easy to read syntax and ability to enable programmers express concepts in few lines of code compared to other programming languages.

1. The component of the Linux Operating system that is considered to be at the lowest level is known as **2mks**

**: Kernel**

1. What operating system was Linux based on? **2mks**

**:** Unix

1. Mention two qualities that have made Linux an operating system of choice for network servers. **4mks**

1) Linux is secure. It highly restricts influence from external sources that can possibly destabilize a server.

2) Linux is stable and even if a program crashes, it won’t bring the OS down.

1. Differentiate between the three (3) major components of the Linux operating system giving three examples each where applicable. **6mks**

The **kernel** is the core of the operating system that controls all the tasks of the system while the **shell** is the interface that allows the users to communicate with the kernel. The **file structure** organizes the way files are stored on a storage device such as a disk (HDD).

For example, the kernel is responsible for memeory management, process and task management. The Shell scripts allow us to program commands in chains and have the system execute them as a scripted event, and the file structure organizes files into directories.

1. Briefly explain the meaning of **“Open Source software” 4mks**

: Open source, is a software which is normally distributed with the source code under an open source license. An OSS program must meet the following criteria:

* The program must be freely redistributed
* The program must allow distribution in source code as well as compiled form.
* Anyone must be able to modify the source code.
* The license of the program must not discriminate against persons, groups, and fields of endeavor.

1. In which structure are directories organized in Linux? **2mks**

: Directories are organized into a heirachical tree structure, beginning with an initial root directory.

1. Write down the directory commands that will achieve the following actions:
2. Create the directory : ***home/joe/mark/bob/*** **2mks**

: ~$ mkdir –p /home/joe/mark/bob

1. Display your ***current*** directory. **2mks**

: ~$ pwd /home/joe/mark/bob/

1. Change to the ***/bin*** directory from anywhere in the directory tree. **2mks**

: ~$ cd /bin

1. Go to the ***home*** directory of the ***current*** directory. **2mks**

: ~$ cd ~ /home

1. Go to the ***root*** directory. **2mks**

: ~$ cd / \*

(PLEASE REVIEW THIS PART CRITICALLY AND MAKE ANY NECESSARY CORRECTIONS)

1. Study the following file list and answer the questions that follows:

-rwxr-r-x 1 John TeamA 53468 July 1998 download1

a) Explain the various segments of the above listing. **4mks**

**:** Reading from left to right, we have the file permission symbols (r = read, w = write, x = execute), the file belongs to John in particular and it is the one (1) file (number of links is 1), the file belongs to the group users TeamA, the file is 53468 bytes large, was created on July 1998, and the file name is download1.

b) What are the privileges granted to the:

(i) user **2mks**

**:** The user can read, write, and execute the file.

(ii) group **2mks**

: The group users can only read the file.

(iii) world **2mks**

**:** Can only read and execute the file.

c) What type of file is under consideration above? Explain. **2mks**

**:** An ordinary/regular file. This is because the permissions start with a dash (-) and not a d (which stands for directory).

d) Identify the name of this file. **2mks**

**:** The file name is “download1”.

1. Explain the meaning of the following shell commands. Assume in all instances that you are at the command prompt.
2. **Ls -l /home/joe/bob 2mks**

: Lists details like the permissions, owner, group, size, creation date, whether the file is a link to somewhere else on the system and where its link points.

1. **pwd mark 2mks**

: Displays current directory /mark

1. **chmod 665 ftp 2mks**

: Change permissions to –rw-rw-r-x for the file ftp

1. **chown joe ftp 2mks**

: Changes the ownership of the file ftp to joe

1. **rmdir directory/ 2mks**

**:** Removes the directory

1. **touch draft1 2mks**

**:** Creates the file draft1

1. **cal 2mks**

**:** Display a formatted calendar in the terminal

1. **cat 2mks**

**:** Sends file contents to a standard output.

1. **chmod ug-rw,o+w bob 2mks**

**:** Changes file permissions for bob to –rw-rw--w-