CATHOLIC UNIVERSITY INSTITUTE of BUEA
2019/2020 ACADEMIC YEAR
FIRST SEMESTER EXAMINATIONS – MARCH 2020

EoC

School	SCHOOL OF INFORMATION TECHNOLOGY				
Course Code	SIT 121	**Course Title**	INTRODUCTION TO UNIX		
Status	C	**Credit Value**	6	**Dept**	Cyber Security
Date	06/03/2020	**Venue**	LH2, LH8, LH9	**Time**	8:00 – 11:00
Course Instructor (s)	Mm. Tiako Fani N.				

INSTRUCTIONS: Answer all questions

Exercise I: (10 marks)

1) The Unix operating system is made up 3 key parts. Name and briefly explain them. **(3 marks)**
2) Every item stored in a UNIX filesystem belongs to one of four types. What are those types? **(2 marks)**
3) What will happen if the command *$ shutdown -r now* is executed by the computer owner? **(1 mark)**
4) What command shows file permissions? **(1 mark)**
5) Write a command to list all directories containing the string 'PM' in the parent directory. **(1 mark)**
5) Explain what the command *chmod 750 args.sh* means. **(2 marks)**

Exercise II (10 marks)

Consider the following Bourne Shell code that creates a file named **count_lines.sh** and writes as its content a shell script that will report the number of lines in each text file within the current directory.

```
cat > count_lines.sh << 'EOF'
#!/bin/bash
for FILE in $(*.txt)
do
    wc -l "${FILE}"
done
EOF
```

1) State 2 text editors on the Unix Shell where this code can be written while specifying the one which is installed by default on the system. **(2 marks)**
2) Update this script to add a statement that:
   i- asks the user to enter his username and displays that name on the screen. **(2 marks)**
   ii- counts the total number of *.txt* files in the current directory, and prints out this number to screen. **(2 marks)**
3) Write a command to make the script file executable for all users. **(2 marks)**
4) Write a command to run the file. **(2 marks)**

Exercise III (12 marks)

Consider the scenario where the user is currently in the **home** directory of a computer whose file system is given in Figure 1 below. Write the commands that perform the following tasks.

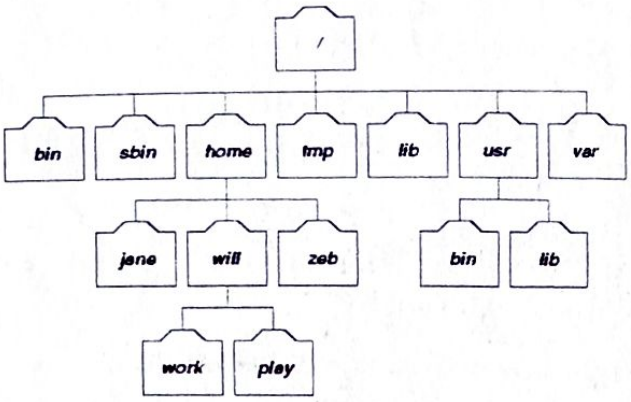

Figure 1

1) Create the folder **`foo/bar/baz.`** **(1 mark)**
2) Create a file containing 'Hello world' named ***hello.txt*** in the foo/bar directory. **(1 mark)**
3) Delete the **`foo`** folder and everything in it, including subdirectories. **(1 mark)**
4) Copy the content of the files ***input1.txt*** and ***input2.txt*** to the play directory. **(1 mark)**
5) Go to the will directory. **(1 mark)**

6) Working with the file ***input1.txt***, do the following actions: **(1 * 7 = 7 marks)**
   a. Display the first 10 lines of the file.
   b. Display the content of the file without the first line.
   c. Display only lines that contain **John**.
   d. Display only lines that do not contain **John**.
   e. Display only lines that contain 4-letter words starting with **J**.
   f. Change all occurrences of John to Tom.
   g. Compress the file with ***gzip***.

Exercise IV **(18 marks)**

1) Which Unix command is used to determine the used and free space of a disk? **(1 mark)**
2) Consider the output given below. What command generated this output? **(1 mark)**

```
drwxr-xr-x  3 will finance 4096 Nov 20 10:45 will
```

3) Identify the different components of the output in (2). **(4 marks)**
4) What is a process? What is a pipe used for? **(2 marks)**
5) In the following command, the pipe operator is used to combine the output of 3 processes. What does the command do? **(2 marks)**

```
$ cat hello.txt | sort | uniq
```

6) Write a command for a process that displays all lines in **hello.txt** that contain the string "dog" but do not contain the string "cat". The process should execute in the background. **(3 marks)**
7) Write a command to kill the process in (6) using its name. **(1 mark)**
8) What command is used to find out the process IDs of the underlying processes associated with the shell and its jobs? **(1 mark)**
9) What does the command $ telnet www.doc.ic.ac.uk 80 do? How is this command limited? What other command can you use to avoid this limitation? **(3 marks)**