PIONEER INTERNATIONAL UNIVERSITY

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UNIVERSITY EXAMINATIONS

ACADEMIC YEAR: 2021/2022 **SEMESTER:** SEP-DEC

UNIT CODE: BSIT 3260 **UNIT NAME:** SYSTEM PROGRAMMING

DATE: DEC 2021 **TIME:** 2 HOURS

IMPORTANT NOTICE !!!!!!!!!!!!

The following are the possible consequences if found guilty of an Examination Offence:
a) Expulsion from the University.
b) Academic Leave.

SECTION ONE

QUESTION ONE

a) Explain the following terminologies as used in Systems Programming (6MKS)
   i. System Software
   ii. API
   iii. System calls

b) Draw a labelled architecture of Linux System (6MKS)

c) Write a script that prompts the user to enter the length, and the width of a rectangle, then calculate and display and the area of the rectangle. (6MKS)

d) Explain the following directories as used in Linux file system (2MKS)
   i. /bin
   ii. /sbin

e) State the purpose of the following commands that as used in processes control (2MKS)
   i. ps
   ii. kill

f) Define a shell, stating two examples of shells available in Linux (3MKS)

g) Using a for loop, write a script to calculate the totals for numbers one to five (5MKS)

(Totals 30Marks)

SECTION TWO

QUESTION TWO

a) Software ownership can either be proprietary or open source. Discuss the two type of ownership citing an example in each case. (4MKS)

b) Write a user friendly Linux script to do the following; (6MKS)

   i. Display the system date and time

   ii. Display the calendar for year 2010 and redirect it to a text file called script1.sh

   iii. It should display the long list of the present working directory and append the output to the file in f (ii).

c) Define a variable called num with value 22 and print it on screen (2MKS)

d) Write a Linux command to shutdown the and reboot it at 1430hrs (2MKS)

e) Highlight any two Linux distributions or distros (2MKS)

f) Write the Linux commands to do the following using a file called employees.txt (4MKS)

   i. Display the long listing of only the ordinary files

   ii. Using octet notation assign the users, groups and others with the rights to read and execute only to a file called myfile.sh

   iii. Rename the file employees.txt as stafflist.txt

   iv. Open a file lesson1.sh in read only mode using a vi editor

(Totals 20Marks)

QUESTION THREE

a) Initialize your first name as a string and do the following. (5MKS)

   i. Write a script statement to display the length of your name.

   ii. Write a script statement to display the first three characters of your name.

   iii. Write a script statement to display the length of your name.

   iv. Write a script statement display your name.

b) Distinguish between "zombie" and "orphan" processes (4MKS)

c) Write a Linux script to (i) Create an array of four cattle breeds friesian, jersey, zebu, and shorthorn (ii) Display the third element of the array. (iii) Replace the breed zebu with hereford (iv) Add two new breed ayrshiers and querseys. (6MKS)

a) Delete the non- empty directory piu in the present working directory (1MK)

d) State the vi commands to do the following (4MKS)

   i. Delete three lines from the current cursor position

   ii. Move the cursor to the previous line

iii. Exit and discard changes

iv. Delete the character under cursor in command mode

(Totals 20Marks)

QUESTION FOUR

a) Explain three types of computer files permissions that can be assigned to the users (3MKS)

b) Write a script that prompt the user to enter age an display the message "You are eligible to vote" if age entered is greater that eighteen years, otherwise it should display "You are younger" (6MKS)

c) Create a system program warn all the users that the system will be shutting down the system in ten minutes time, shut down the system after the ten minutes and reboot the system at 8pm (4MKS)

d) Write a user friendly script that performs the following actions.

i. Prompts the user to enter a name of a directory and create the directory on the current working directory. (3MKS)

ii. Open the created directory and create a text file called example.txt (2MKS)

iii. Display the recently executed commands and redirect the output to the file created in a (ii) (2MKS)

(Totals 20Marks)