

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

RESITS/SPECIAL EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF
SCIENCE IN COMPUTER SCIENCE

COSC 224: UNIX OS AND C PROGRAMMING

STREAMS: Y2S2

TIME: 2 HOURS

DAY/DATE: MONDAY 28/8/2023

2.30 P.M. – 4.30 P.M.

Candidate's Instructions

Answer Question One and any other two questions.

Question One (30 marks)

- (a) Explain the three types of commands in UNIX (3 marks)
- (b) Explain the use of the commands `sudo` and `su` in UNIX (3 marks)
- (c) How is the command "`$who > file2`" different from "`$who -u >> file2`" (3 marks)
- (d) What does the command "`$who | sort -logfile > newfile`" do? (3 marks)
- (e) What does the command "`$ls | wc -l > file1`" do? (3 marks)
- (f) Write a shell program script to list all files in the `/home/docs` directory that have the permission execute for the user. (5 marks)
- (g) Write a **perl** program script to find and display all the lines with the word "edited today" from all the files in the directory `/home/users/faith` (5 marks)

- (h) Write awk program script to capture all the users logged in the server in a file “loggedtoday” and then extract only the user names in and save them in the file “todayusernames” sorted in ascending order. (5 marks)

Question Two (20 marks)

- (a) Write a **perl** program that populates an array named *weekday* from the string SunMonTueWedThuFriSat, and then prints each day in uppercase. (6 marks)
- (b) Write a **shell** script that prompts for a string and then checks lists all the files with that string value from the directory /home/users/config (6 marks)
- (c) Assuming that a file’s current permissions are rw-r-xr--, using both relative and absolute permissions, specify the chmod expression required to change them to the following permissions. (8 marks)
- i) rwxrwxrwx
 - ii) rwxrw-r--
 - iii) ---r--r--
 - iv) r-----

Question Three (20 marks)

- (a) Explain what the commands shown below will do when executed. (3 marks)
- (i) `cat /etc/passwd | sort`
- Will display on the screen all the user accounts and other directories/files in sorted in ascending order.*
- (ii) `sudo userdel -r xyz` (3 marks)
- Elevates the privileges of the current user to a root user and deletes the user “xyz” and all associated files and directories if the user is not currently logged in. However, the command will work upon entry of correct root password*
- (b) Write a **perl** script to compare contents of two files file1 and file1backup. If the files are equal, the program should report “the files are equal”. If the files are different, the program should display the line where the two files are differing. (6 marks)
- (c) Write a **perl** script for creating a backup for every file in the current working directory. Every backup file shall be named “file”_backup where “file” is the file name that you are backing up. (8 marks)

Question Four [20 marks]

- (a) Write a **perl** script to find the file with the phrase "Server setup: Static IP: 170.20.3.133" in the directory /system/config and replace it with "server static ip:170.20.5.122"
(6 marks)
- (b) Identify the errors in the shell script shown below and rewrite every line correctly by way of a comment after the line. Ignore the line numbers.
(6 marks)

```

/bin/sh
prunning=yes
echo "Enter value of index [value 1, 2, or 3]:"
read index
while $prunning = yes ; do

    $index + 1
    sleep $index
    if [ $index => 20 ] ; then
        break
    done
    print "Job done"

```

- (a) Write a **perl** program that prompts a user to repeatedly enter an integer number. When the user enters 0, the program should print the average and the total. The program should capture all the numbers entered and their total in a file "numbers.txt".
(8 marks)

Question Five (20 marks)

- (a) Write a shell script to rename all file names in the current working directory that end with .txt to end with .pl and change their user permission to rwx for the user category.
(6 marks)
- (b) Write a shell script to allow specified users to login in the server between 9:00 Am to 11:00 AM, 11:30 AM to 1:30 PM.
(6 marks)
- (c) With an example, explain the purpose of each of the following commands.
(8 marks)
- (i) wall
 - (ii) grep
 - (iii) file
 - (iv) gunzip
 - (v) less
 - (vi) ls -l
 - (vii) man
 - (viii) vi
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