

EGERTON

UNIVERSITY

UNIVERSITY EXAMINATIONS

REGULAR- NJORO CAMPUS

SECOND SEMESTER 2016/2017 ACADEMIC YEAR

SECOND YEAR EXAMINATION FOR THE BACHELOR OF SCIENCE IN COMPUTER
SCIENCE

COMP 224- UNIX AND SYSTEM PROGRAMMING

STREAM: Bsc IN COMPUTER SCIENCE

TIME: 2 HOURS

EXAMINATION SESSION: JUNE

YEAR: 2017

INSTRUCTIONS

1. Answer THREE questions in all. Question ONE is COMPULSORY
2. Follow instructions on the answer sheet
3. Extra answered questions will not be marked
4. Label questions carefully

QUESTION ONE[COMPULSORY] (30 Marks)

[2 marks]

(a) Define the term operating system.

(b) The Unix operating system is said to be a multi user operating system. What does this mean?

[2 marks]

(c) What is the relationship between an operating system and a computer?

[4 marks]

(d) What condition must exist before one deletes a specified directory from a Unix file system?

[2 marks]

- (e) Which command do you use to delete a directory from a Unix file system? [2 marks]
- (f) Briefly explain what the following commands do if executed by the shell
- \$ ls -l > My_files [3 marks]
 - \$ cat Myfiles [3 marks]
 - \$ who | sort > listed_file [3 marks]
- (g) What do you understand by the following terms
- Device file [3 marks]
 - Device drivers [3 marks]
 - Terminal emulator. [3 marks]

QUESTION TWO (20 Marks)

- (a) What do you understand by a file system? [3 marks]
- (b) What is difference between absolute and relative path?
- (c) Briefly explain what you understand by file access permission modes? Use examples to support your answer. [3 marks]
- (d) Files in a Unix system have owners, briefly describe the file ownership relationship. [4 marks]
- (e) What command can be used to change the file permission?
- (f) Supposing you issue this command at the prompt “\$ ls -l the_created_notes” and get the following output
-rw-rwx-r- 1 Korir HR 5632 Apr 3 14:59 the_created_notes. Explain what you understand by the output. [4 marks]
- (g) Supposing it is desired that we get an output like
-r- r-x-r-x- 1 Korir HR 5632 Apr 3 14:59 the_created_notes, explain how you would go about it. Use octal mode to explain the instructions you would execute. [6 marks]

QUESTION THREE (20 marks)

- (a) What do you understand by Unix redirection operators? [4 marks]
- (b) Briefly explain how each of the operators mentioned in 3 (i) is used by Unix users. You may pick any three of the operators. [6 marks]
- (c) Redirect the output of the commands ‘pwd’ and ‘date’ in succession to a file ‘My_own_file’ so that the two outputs appear in the file one after the other. [4 marks]
- (d) Write a shell script that can be used to store and execute the instructions given in 3 (c) above. [6 marks]

QUESTION FOUR (20 marks)

- QUESTION ONE [10 marks]**

 - (a) What do you understand by a computer process? [2 marks]
 - (b) What command is normally used to display a list of processes? [1 mark]
 - (c) Differentiate between background and foreground processes. [8 marks]
 - (d) Write down an instruction that would terminate a process that is executing in the background
 - (e) What advantage is there to execute a process in the background? [3 marks]
 - (f) How would you make a process to execute in the background? [3 marks]

QUESTION FIVE [20 marks]

 - (a) What is a UNIX shell? [2 marks]
 - (b) Why do you think a Unix shell behaves like any other programming language? Support your answer. [4 marks]
 - (c) What needs to be done before you can run a shell script from the command line prompt? [2 marks]
 - (d) Write Script to allow a user to see current date, time, username, and current directory. It should also enable a change of the permission settings of a file “My_hidden_files” so that the owner will have all permissions, the group and others to have only read and execute permissions. [5 marks]
 - (e) Write shell script using a for loop to print the following pattern on screen

1

22

333

4444

55555

[7 marks]

