

**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)**

- (a) Define the term operating system. [2 marks]
- (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
- (i) `$ ls -l > My_files` [3 marks]
  - (ii) `$ cat Myfiles` [3 marks]
  - (iii) `$ who | sort > listed_file` [3 marks]
- (g) What do you understand by the following terms
- (i) Device file [3 marks]
  - (ii) Device drivers [3 marks]
  - (iii) 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-x-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)**

- (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 [3 marks]
- (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]

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