



# THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

**A. M. E. C. E. A**

P.O. Box 62157

00200 Nairobi - KENYA

**MAIN EXAMINATION**

Telephone: 891601-6

Ext 1022/23/25

**JANUARY – APRIL 2022**

**FACULTY OF SCIENCE**

**DEPARTMENT OF COMPUTER SCIENCE**

**REGULAR PROGRAMME**

**DIT 011: LINUX ESSENTIALS**

<b>Date: APRIL 2022</b>	<b>Duration: 2 Hours</b>
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<b>INSTRUCTIONS: Answer Question ONE and any TWO Questions</b>
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Q1. a) Explain what the following access permission commands will do to a particular user/group of users. (6

Marks)

I). Command: u-w

II). Command: g+x

III). Command: o-x

IV). Chmod 756 *example1*

b) Discuss **THREE** roles and responsibilities of system Administration in Linux.

(6 Marks)

c) Using an example of a file called “test” example **THREE** ways you can use the *cat (Concatenate)command.* (3

Marks)

d) Explain any **FIVE** Linux features that made it to be a hit from the start and very popular operating systems nowadays. (5

**Marks)**

e) Give the correct syntax of the Linux command that can be used to achieve the following: (5 Marks)

- I). Display the last 15 lines of a file named “**food4thought**”
- II). Search for a string **excellent** in a file named “**students**”
- III). Combine “**file1**” and “**file2**” to new “**file3**”
- IV). Change the permissions of directory “**/tmp**” to 700

f) Discuss **FIVE** application areas for Linux Operating system. (5 Marks)

Q2 a) Define Linux kernel and explain **FOUR** functions performed by the kernel. (5 Marks)

b) The lines given bellow represents an output of a command prompt as entered by the user:

```
-r - x r - r - - 23 guru99 guru99 4096 2013-01-23 00:42 .config  
-r w - r - r - - 12 guru99 guru99 4096 2013-01-23 00:42 Desktop
```

- I). Write a single command to show the output bellow. (1Mark)
- II). Give the numeric representation for the permissions in both files above. (4 Marks)
- III). Give the symbolic representation for the permissions in both files above. (4 Marks)
- IV). Explain the full meaning of the output “-r - x r - r - - 23 guru99 guru99 4096 2013-01-23 00:42 .config” in full. (3 Marks)

c) Explain the **THREE** user categories in Linux systems. (3 Marks)

Q3. a) Explain the role of the following directories under Linux kernel. (6 Marks)

- I. /proc
- II. /bin
- III. /tmp

b) Describe the basic structure of LINUX operating system. (4 Marks)

c) i) Define the term distro and List and explain **THREE** types of Linux distro available in the market today. **(4 Marks)**

ii) Discuss the use of the following Linux commands. **(6 Marks)**

I. pstree

II. uniq

III. tee

Q4. a) Discuss how you will install any Linux Distro using Live key (Live CD/ Flashdrive/ Harddisk). **(4 Marks)**

b) i) Distinguish with example between the following terminologies in Linux. **(4 Marks)**

*A)* Relative pathname and Absolute pathname

*B)* Home directory and Root directory

ii) Discuss the **THREE** different modes that are available on vi editor? **(6 Marks)**

c) I) What is a sudo command in Linux operating system. **(2 Marks)**

II). How do I log in as sudo in Linux operating system? **(4 Marks)**

Q5. a) Explain what is Linux shell and describe types of a shell with the example. **(6 Marks)**

b) Write a shell program to check that whether the giving number is the prime number. **(6 Marks)**

c) I) What (if anything,) is wrong with each of the following commands? **(3 Marks)**

I). ls -l-s

II). cat file1, file2

III). ls -s Factdir

II). By use of a suitable example, explain the use of the “kill” command in Linux. **(3 Marks)**

d) Name **TWO** individuals who contributed to the development of open-source software and briefly describe their contribution. **(2 Marks)**

**\*END\***

DTE APRIL 2022