KISII UNIVERSITY
UNIVERSITY EXAMINATIONS
SECOND YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF BACHELOR OF SCIENCE IN MATHEMATICS WITH COMPUTING SECOND SEMESTER 2023/2024
[JAN – APRIL, 2024]

COMP 203: UNIX OPERATING SYSTEM AND PROGRAMMING

STREAM: Y2 S2   **TIME: 2 HOURS**

DAY: WEDNESDAY, 12:00 - 2:00 P.M.   **DATE: 17/04/2024**

INSTRUCTIONS

1. *Do not write anything on this question paper.*
2. *Answer question ONE (Compulsory) and any other TWO questions.*

QUESTION ONE (30marks)

(a) State the differences between a UNIX and a LINUX operating systems (4 marks)

(b) Explain the following file and directory related commands clearly giving their syntax in each case

(i)	Ls command	(1mark)
(ii)	Cat command	(1mark)
(iii)	Cal command	(1mark)
(iv)	Who command	(1mark)

(c) When interpreting a command line given at its prompt, the shell follows one or more steps. State the Five steps   (5marks)

(d) (i) Describe a Unix process creation using a diagram   (5 marks)

    (ii) State five reasons that may lead to process termination   (5 marks)

(e) State four rules governing Unix file names   (4 marks)

(f) Briefly explain three Unix operating system features   (3 marks)

QUESTION TWO (20marks)

(a) Define a shell as used in unix programming giving two examples of shells

(2 marks)

(b) The Architecture of the UNIX system is divided into 4 major components. Explain the FOUR components (8 marks)

(c) Using a diagram explain a five state model of a Unix operating system

(10 marks)

QUESTION THREE (20marks)

(a) Describe any FIVE communication commands as used in Unix operating systems giving syntax in each case. (10 marks)

(b) Using a diagram describe the architecture of the Kernel in Unix operating system

(10 marks)

QUESTION FOUR (20marks)

(a) State and explain any FIVE Services offered by the UNIX operating system

(10 marks)

(b) Unix (shell) has some special features that are useful for interaction and programming. Describe **Piping** and **Filters** as used in Unix OS

(10 marks)

QUESTION FIVE (20marks)

(a) The UNIX OS is built around the concept of the a file system which is used to store all of information. Explain the FOUR types of files (8 marks)

(b) The structure of a simple UNIX file system divided into 4 parts. Describe the FOUR parts of a unix file system (8 marks)

(c) Explain the differences between the fgrep and egrep commands as used in UNIX operating system (4 marks)