

**SPECIFY TYPE OF
EXAMINATION**

FIRST ATTEMPT
FIRST RESIT
SECOND RESIT
RE-TAKE



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF INFORMATICS & INNOVATIVE SYSTEMS
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF
INFORMATION AND COMMUNICATION TECHNOLOGY
1ST YEAR 1ST SEMESTER 2022/2023 ACADEMIC YEAR
MAIN CAMPUS**

COURSE CODE: ITB 2104

COURSE TITLE: LINUX/UNIX SYSTEMS ADMINISTRATION

DATE: 10TH DECEMBER, 2022

TIME: 9.00-12.00 NOON

TIME: 2 HOURS

Instructions:

- 1. This paper contains FIVE questions**
- 2. Question one is compulsory**
- 3. Answer any other two questions**



Question 1 (30 marks)

- a) Explain what you understand by the term “Linux distribution” {2 marks}
- b) Enumerate the three things that make up the GNU coreutils package. {3 marks}
- c) What is the name of Linux’s creator? {1 marks}
- d) Give TWO distinguishing difference between Unix and Linux? {4 marks}
- e) What command would you use to do the following within the shell prompt.
 - i) Copy a directory with all its contents {1 mark}
 - ii) Rename a directory {1 mark}
 - iii) Create a directory and subdirectories {1 mark}
 - iv) Print the contents of a file to screen {1 mark}
 - v) Delete a directory in interactive mode {1 mark}
- f) The udev daemon was designed to simplify the problem of dealing with the devices and the /dev directory. This is realized because the udev daemon performs two important tasks. Enumerate them. {2 marks}
- g) Under what two conditions will it be necessary to build a package from source? {2 marks}
- h) Differentiate between an orphan process and a zombie process? {2 marks}
- i) List any THREE native Linux filesystems. {3 marks}
- j) Briefly enumerate the THREE types of Linux users from a technical point of view {3 marks}
- k) Highlight the THREE directions that a signal in a Linux system can act. {3 marks}

Question 2 (20 marks)

- a) In Linux, running programs are referred to as processes.
 - i) What are the two process types? {2 marks}
 - ii) Every command in Linux starts a process. What are the three ways in which the commands can be started? {3 marks}
- b) The Linux system has four main parts. With the aid of a suitable diagram, list them and explain the function of each part. {10 marks}
- c) Linux has several types of packages depending on the distribution
 - i) What are the two main types of packages and which major Linux distributions developed each of them? {2 marks}
 - ii) What are the two new package types that have been developed recently and by whom? {2 marks}
 - iii) Why were the two new package types developed? {1 mark}



Registration No.....

Question 3 (20 marks)

- a) Once you obtain a device driver module file for your hardware, you can install it in Linux system kernel.
 - i) There are two ways to include the device driver into the kernel. Explain each of them. {4 marks}
 - ii) This can be achieved using any of two common commands. Enumerate and explain what each of the commands achieves. {4 marks}
- b) Discuss the two types of shell connections possible in Linux. {4 marks}
- c) There are two special filesystems in Linux directory structure that should interest system admins. Discuss them briefly. {4 marks}
- d) Explain the command line tools that can be used to find the different devices installed on the Linux system? {4 marks}

Question 4 (20 marks)

- a) Enumerate the steps to follow when installing any Linux distribution on your computer, assuming a normal installation with no virtualization. {4 marks}
- b) What is the Windows Subsystem for Linux? {2 marks}
- c) Name and briefly describe the two popular init process implementations {4 marks}
- d) Discuss the FIVE essential points that may help in making right decision when choosing a Linux distribution. {10 marks}

Question 5 (20 marks)

- a) In Linux filesystem, during the boot process, certain files must be loaded with the root filesystem(/). List any three of these files and briefly explain the purpose of each of them {6 marks}
- b) Explain what you understand by the phrase “everything is a file” {2 marks}
- c) There are two methods of classifying device files in Linux.
 - i) Enumerate the two methods. {2 marks}
 - ii) Discuss the options available under each method for classifying the devices. {10 marks}