



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY**

(MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

FIRST YEAR FIRST SEMESTER EXAMINATIONS

FOR THE DIPLOMA

IN

INFORMATION TECHNOLOGY

COURSE CODE: DIT 078

COURSE TITLE: SYSTEM ADMINISTRATION

DATE: 20/04/2022

TIME: 8:00 - 10:00AM

INSTRUCTIONS TO CANDIDATES

Answer Question **ONE (1)** and any other **TWO**

TIME: 1 Hour 30 Mins

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 3 Printed Pages. Please Turn Over.

QUESTION ONE (24 MARKS)

- a) Systems are found everywhere we live and work. State any three characteristics of a system
(3 marks)
- b) You are a standard user of a system, yet you have been given a root access to GNU/Linux OS. Explain the danger involved. **(4 marks)**
- c) GNU/LINUX is a free software for everyone
- Explain the meaning of free software as used in system administration **(2 marks)**
 - Outline four essential freedoms that one enjoys when using a free software. **(4 marks)**
- d) Differentiate between a kernel and an operating system **(4 marks)**
- e) Using www.google.com as an example, state the command to trace the route taken by the packets over a maximum of 30 hops **(3 marks)**
- f) Describe any four functions of a system administrator **(4 marks)**

QUESTION TWO (18 MARKS)

- a) A content management system (CMS) is a software tool used to create, retrieve, update, and delete the content of a website. Describe the core features and functions of CMS **(7 marks)**
- b) You have been hired to implement OS hardening in a company, discuss the in-depth steps you would use to harden the OS stating its importance. **(7 Marks)**
- c) Discuss the two classifications of Intrusion Detection Systems (IDS) and clearly explain their components. **(4 marks)**

QUESTION THREE (18 MARKS)

- a) You are a system manager in your company. You want to have the read and write access rights to the system. Discuss the process of gaining root access to LINUX server using shell, netstat among other tools. **(6 Marks)**
- b) Servers offer different types of services to the networks and client computers. Name any **six** types of servers and give at least one function of each **(6 marks)**.

- c) One of the functions of the system administrator is user support education, discuss the importance of this education and how it is done. **(6 marks)**

QUESTION FOUR (18 MARKS)

- a. You have been hired as a system administrator in RODEX Company. You are told to give a lecture on different types of servers and their services. Briefly explain any 4 of these servers **(8 marks)**
- b. Though users are an essential part of a system, they are also a threat.
- (i) State any two kinds of threats users can pose to a system. **(3 marks)**
 - (ii) Describe two measures you can take as a system administrator to ensure that users are not a threat to the system. **(3 marks)**
- c. You are a system administrator in RUNTECH Company. Explain the ethical conduct that you will exhibit **(4 marks)**

QUESTION FIVE (18 MARKS)

- a. List three security measures that a sys admin should take to ensure protection of their system. Also mention one way to circumvent those measures. **(5 marks)**
- b. You are setting up a server room for your organization. As a system administrator, state the conditions under which such a room would be suitable to host servers **(5 marks)**
- c. Discuss in detail the components and functions of the /root and /etc directories in GNU/LINUX **(8 marks)**