



(Knowledge for Development)

KIBABII UNIVERSITY

(KIBU)

**UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR**

**SPECIAL/SUPPLEMENTARY EXAMINATIONS
YEAR TWO SEMESTER ONE EXAMINATIONS**

**FOR THE DIPLOMA IN
(INFORMATION TECHNOLOGY)**

**COURSE CODE : DIT 069
COURSE TITLE : NETWORK AND DATA
COMMUNICATION II**

DATE: ¹⁹28/07/2022 TIME: 8.00 A.M. -10.00 A.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE AND ANY OTHER TWO

QUESTION ONE [24 MARKS]

- (a) Explain the following terms as used in network and data communication [5 Marks]
- i. Frame
 - ii. Route
 - iii. Subnet
 - iv. Client
 - v. Server
- (b) Token passing is a classic media access method used in local area networks. explain two of its strengths that could be influencing its popularity over CSMA method [4 Marks]
- (c) Confidentiality, integrity and availability are the three main pillars of a secured internetwork, briefly justify this statement. [6 Marks]
- (d) State any FOUR communication functions performed at the Application layer of the OSI reference model. [4 Marks]
- (e) The Internet connects millions of computers and telecommunication devices that have different hardware and software configurations. For these incompatible devices to be able to communicate there must be protocols. What are the functions of a protocol? [5 Marks].

QUESTION TWO[18 MARKS]

- (a) Every network topology requires careful considerations before installation. Outline FOUR factors that should be consider when selecting a network topology before the installation. [4 Marks]
- (b) Your manager wishes to be connected to the Internet. He already has a powerful personal Computer (PC), a printer, and access to a Telephone line. However, he understands that he will need a Router. State why a router is required to connect him to the internet. [4 Marks]
- (c) Compare and contrast circuit-switching with packet switching technique. [4 Marks]
- (d) List any TWO functions of the following OSI layers. [6 Marks]
- i. Physical
 - ii. Data link
 - iii. Network

QUESTION THREE[18 MARKS]

- (a) Define the following terms as use in network security. [6 Marks]
- i. Cipher
 - ii. Encryption
 - iii. Trojan horse
 - iv. Social engineering

- v. Threat
- vi. Cryptography

- (b) Name the FOUR most common protocols for the Internet, and state their functions. [4 Marks]
- (c) Differentiate between connectionless and connection-oriented model in data communication. [4 Marks]
- (d) Outline two roles of a firewall in a computer network [4 Marks]

QUESTION FOUR [18 MARKS]

- (a) Explain how network traffic can be controlled using token-ring technology. [6 Marks]
- (b) Outline FOUR benefits of a client-server network model. [4 Marks]
- (c) Distinguish between a repeater and a hub as used in computer networks. [4 Marks]
- (d) Outline functions of a firewall in a computer network. [4 Marks]

QUESTION FIVE [18 MARKS]

- (a) What are the reasons for having a layered architecture model? [4Marks]
- (b) With the aid of a diagram, describe the TCP/IP layer model. [6Marks]
- (c) Jane intends to propose physical security measure for a network. outline four physical measures that she could have identified. [4Marks]
- (d) Describe the Carrier Sense Multiple access with Collision Detection (CSMA/CD) access protocol [4Marks]