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*(Knowledge for Development)*

**KIBABII UNIVERSITY**  
**(KIBU)**

**UNIVERSITY EXAMINATIONS**  
**2022/2023 ACADEMIC YEAR**

**END OF SEMESTER EXAMINATIONS**  
**YEAR ONE SEMESTER TWO EXAMINATIONS**

**FOR DIPLOMA**  
**(INFORMATION TECHNOLOGY)**

**COURSE CODE** : **DIT 060**  
**COURSE TITLE** : **COMPUTER NETWORKS**  
**DATA COMMUNICATION I**

**DATE: 26/04/2023**      **TIME: 9.00 A.M. - 11.00A.M. 2HRS**

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**INSTRUCTIONS TO CANDIDATES**  
**ANSWER QUESTIONS ONE AND ANY OTHER TWO.**

**QUESTION ONE (COMPULSARY) [24 MARKS]**

- a. Define the following terms as used in computer network and data communication [6 Marks]
- i. Half Duplex Transmission
  - ii. Point to Point communication
  - iii. Synchronous transmission
  - iv. Network threat
  - v. Internet protocol
- b. Describe the difference between Bounded and unbounded transmission media [4 Marks]
- c. Explain the functional difference between a Repeater and Bridge. ? [4 Marks]
- d. State the difference between Dynamic and Static IP address [4 Marks]
- e. Signals picks unwanted random energy, discuss such three transmission impairments [6 Marks]

**QUESTION TWO [18 MARKS]**

- a. Discuss the significance of TCP/IP and its implementation in data networks [6 Marks]
- b. With a aid of diagram describe the complete computer communication systems[8 Marks]
- c. There are two types of computer network standards, explain with the use of example [4 Marks]

**QUESTION THREE [18 MARKS]**

- a. Define the term Multiplexing, state its role in data communication and differentiate between Frequency Division Multiplexing (FDM) and Time Division multiplexing (TDM) techniques [10 Marks]
- b. Describe the following switching techniques as used in data communication and networking.
- i. Circuit switching [4 Marks]
  - ii. Packet Switching [4 Marks]

**QUESTION FOUR [18 MARKS]**

- a. Discuss any four network security threats you are familiar with [8 Marks]

- b. Elaborate ethical issues that have been realized with the evolution of the internet today  
[4 Marks]
- c. Explain the limitations of a ring network topology compared to a bus network topology  
[6 Marks]

**QUESTION FIVE [18 MARKS]**

- a. Distinguish between the following terms
- i. Logical versus Physical topology [4 Marks]
  - ii. Analogue versus digital signals [4 Marks]
- b. What are three benefits of client –server networks compared to peer to peer networks  
[6 Marks]
- c. What are the differences between TCP and UDP?  
[4 Marks]