



(Knowledge for Development)

KIBABII UNIVERSITY

**UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR**

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

**FOR THE DEGREE OF
(COMPUTER SCIENCE)**

COURSE CODE : CSC 223

COURSE TITLE : DATA COMMUNICATION

DATE: 28 /07/2022

TIME:

02:00 P.M – 04:00 P.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE (COMPULSORY) [30 MARKS]

1 a) Define the following terms as used in Data Communication:

- i. Host [2 marks]
- ii. Client [2 marks]
- iii. Signal [2 marks]
- iv. Protocol [2 marks]

b) Explain why more than one computer would need to be connected to other computers? [2 marks]

c) What is the role of a transmission media in data communication? [1 mark]

d) State the advantages of using the Fiber Optic transmission medium over the Coaxial cables. [3 Marks]

e) Explain the following types of routing

- i. Base band [2 Marks]
- ii. Broad band [2 Marks]

f) Using diagrams explain the different ways that data flows between two devices communicating with each other. [6 marks]

g) State the two types frequency modulation? [2 marks]

h) Discuss two traditional methods of switching as used in data communication [6 marks]

QUESTION TWO [20 MARKS]

a) Terminals are designed primarily to input and display information in some form or the other.

Discuss three types of terminals. [6 marks]

b) Outline any four tasks performed by the NIC (Network Interface Card) [4 marks]

c) Cable television is becoming more popular these days than the past. Using the FDM concept, explain how a viewer seated in his room is able to choose between different television channels. [4 marks]

d) During communication, there is a possibility that the signal received will be different from the

one sent originally as a result of different impairments. Give briefly the transmission

impairments in data communication channels.

[4 marks]

e) Explain the concept of multiplexing in data communication.

[2 marks]

QUESTION THREE [20 MARKS]

a) You have been invited to a secondary school computing congress. You have been requested to give a presentation on network topologies and how they work. Using diagrams explain the types of network topologies, highlighting their disadvantages.

[12 marks]

b) Use diagrams to differentiate between multiplexing and de-multiplexing concepts. [5 marks]

c) Using a diagram, explain how a fiber optic cable transmits a signal

[3 marks]

QUESTION FOUR [20 MARKS]

a) Your ICT Company has been contracted to construct a Wide area network for Kibabii University and its satellite campuses. Discuss four networking and two internetworking devices you will use to construct the network.

[12 marks]

b) Using diagrams compare and contrast the TCP/IP model and the OSI model.

[8 marks]

QUESTION FIVE [20 MARKS]

a) Differentiate between de jure and de facto standards

[2 marks]

b) State the advantages of layered network architecture.

[6 marks]

c) Discuss the different Techniques of Encoding Data for Transmission.

[12 marks]