



Kasarani Campus

Off Thika Road

Tel. 2042692 / 3

P. O. Box 49274, 00100

NAIROBI

KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2022/2023 ACADEMIC YEAR
END OF SEMESTER EXAMINATION
FOR DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY
DIT 1010- DATA COMMUNICATION & NETWORKING

Date:

Time:

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

Throughout the 1980's, LAN technology and its implementation grew at a phenomenal rate and recently has enabled telecommunications. By the 1990's, the ability to inter-network LANs via the Wide Area Networks was limited to relatively slow speed and inefficient mechanisms. The need to inter-network LANs at higher speeds using more effective communication methods led to the development of Frame Relay that has had a number of applications in the business communication. The Frame Relay has replaced Broadband technologies typically used for providing Internet access across telephone lines traditionally used for simply providing telephony connections.

- a) Explain any three methods that are applied for the network security (4 marks)
- b) State and discuss FOUR networking devices and how it can be used (4 marks)
- c) Clearly distinguish the terms *analog* and *digital* forms of data representation and illustrate each of the data signal forms (6 marks)
- d) Discuss 6 types of networks and an example for the area they cover as stipulated in data communication and networking (6 marks)
- e) Using a well labeled diagram give a clear picture of different type of transmission media (10 marks)

QUESTION TWO (20 MARKS)

- a) Explain the advantages of a layered model (5 marks)
- b) Explain the seven layers of the Open Systems Interconnection (OSI) and its importance

in networking

(10marks)

c) Compare and contrast the OSI model and the TCP/IP model

(5 marks)

QUESTION THREE (20 MARKS)

- a) Distinguish between *guided* and *unguided* transmission media; and give an example of each case (4 marks)
- b) Explain the different transmission impairments. (6 marks)
- c) Discuss any functions of Network interface Card. (10 marks)

QUESTION FOUR (20 MARKS)

- a) Kiriri women's University has a network at the main campus. Which type of network do they have?
- b) Explain the Client – Server model as a configuration for the business data communication systems (8 marks)
- c) Many organizations are adopting networking technology to aid in performing their operations. Explain any *six* benefits associated with networking (12 marks)

QUESTION FIVE (20 MARKS)

- a) Explain the term multiplexing. (2marks)
- b) Explain the concept of time division multiplexing. (8marks)
- c) Which is the most appropriate multiplexing method for today's networks? Give reasons for your answer. (10marks)