

15



(Knowledge for Development)

KIBABII UNIVERSITY

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UNIVERSITY EXAMINATIONS

2020/2021 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS

YEAR ONE SEMESTER ONE EXAMINATIONS

FOR THE DIPLOMA IN

(INFORMATION TECHNOLOGY)

COURSE CODE : DIT 060

**COURSE TITLE : DATA COMMUNICATION &
NETWORKS I**

DATE: 16/06/2021 TIME: 2.00 P.M. 4.00 P.M.

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE AND ANY OTHER TWO

QUESTION ONE (COMPULSORY) [24 MARKS]

- a. Discuss how the internet has revolutionized many aspects of our daily lives and affected the way we do business as well as the way we spend our leisure time. [6 marks]
- b. Explain the role of each of the following network devices [4 marks]
- i. Hub
 - ii. Router
 - iii. Gateway
 - iv. Modem
- c. Define the following terms as used in networking [4 marks]
- i. Physical Topology
 - ii. IP Address
 - iii. Standards
 - iv. End devices
- d. Define the term network media and using examples describe the major categories of network media that institutions utilize to connect together devices internally and externally. [6 marks]
- e. State any four factors one would consider in selecting network media [4 marks]

QUESTION TWO [18 MARKS]

- a. Illustrate graphically, the difference between digital and analogue signals [4 marks]
- b. Identify the three main roles that protocols serve in a computer communication Systems [3 marks]
- c. Briefly explain the differences between physical and logical topology [3 marks]
- d. Using figures, describe any four examples of physical topologies [8 marks]

QUESTION THREE [18 MARKS]

- a. Mr. S. Kalamba a technician with Linked Systems Technologies is setting up a LAN for a client. Identify four network devices that he would use in setting up the LAN. [4 marks]
- b. Explain the difference between the TWO packet data transfer techniques referred to as "connectionless" and "connection-orientated". [6 marks]
- c. Paul Ssemalulu runs a retail shop in Bungoma town with the help of three stand-alone computers. He has had intentions of establishing a computer network but is still skeptical about the technology. Argue for and against this idea in order to help him make informed decision. [8 marks]

QUESTION FOUR [18 MARKS]

- a. State the THREE transmission impairments and explain the source and effects of each in signal transmission. [6 marks]
- b. Describe any three consideration that are necessary when selecting network topology [3 marks]
- c. Explain each of the following switching techniques as applied to Switched Data Networks; and state the desirable and undesirable attributes of each [9 marks]
- i. Circuit switching
 - ii. Message switching
 - iii. Packet switching

QUESTION FIVE [18 MARKS]

- a. Explain the following terms giving an application for each. **[6 marks]**
- i. Simplex
 - ii. Half-duplex
 - iii. Full-duplex
- b. Describe clearly the difference between bridges and router in internetworks **[4 marks]**
- c. Explain why standards are necessary in data communication and telecommunication technology and processes. **[4 marks]**
- d. Explain the following terms. **[4 marks]**
- i. TCP/IP
 - ii. FTP