

CHUKA



UNIVERSITY

**UNIVERSITY EXAMINATIONS**

**THIRD YEAR EXAMINATION FOR THE AWARD OF DEGREE  
OF BACHELOR OF COMMERCE**

**COSC 260: DATA COMMUNICATION**

**STREAMS: BCOM**

**TIME: 3 HOURS**

**DAY/DATE: THURSDAY 01/04/2021**

**2.30 P.M. – 5.30 P.M.**

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**INSTRUCTIONS**

- **Attempt question ONE (Section A) and any other TWO from SECTION B**
- **Marks are awarded for clear and concise answers**
- **ONLY the first THREE Questions attempted will be marked (Question one inclusive)**

**SECTION A-COMPULSORY**

**QUESTION ONE (30 MARKS)**

- (a) Explain with the help of a schematic diagram the main elements of digital data communication system. [6 Marks]
- (b) Differentiate between UTP and STP twisted pair cable. [6 Marks]
- (c) Explain the operation of the following network devices [6 Marks]
- Bridge
  - Access point
  - firewall
- (d) Explain the different transmission impairment that affect data communication. [6 Marks]
- (e) Explain three types of computer networks. [6 Marks]

**SECTION B**

**QUESTION TWO (20 MARKS)**

- a) Explain four factors to consider when choosing a topology. [8 Marks]
- b) Explain the main challenges of installing a network within a business enterprise. [6 Marks]
- c) Lauren a newly employed network engineer want the SinkRSwim Pools workers to become network users. Help him come up with convincing arguments that will make those workers want to join their new workstations to the network as soon as they take delivery. Remember, they are computer novices and do not yet have access to their computers. [6 Marks]

**QUESTION THREE (20 MARKS)**

- a. Explain the two categories of Communication Software. [4 Marks]
- b. State three general functions of a communication software [4 Marks]
- c. Explain the factors that determine the maximum length of any transmission media. [4 Marks]
- d. Explain four factors to consider when choosing a topology. [8 Marks]

**QUESTION FOUR (20 MARKS)**

- a) A digital data stream 0010110 is passing through a communication system. As we know data stream will be converted to signal through using various schemes. Draw the signal of given bit stream using NRZ-1, and Manchester scheme. [6 Marks]
- b) Modem can be categorized in several ways like direction in which it can transmit data, type of connection to the transmission line, transmission mode, etc. Describe the types of modem depending on direction of data transmission. [6 Marks]
- c) Cyber-attacks and threats are on the increase. Explain the threats and control measures an organization should put in place [8 Marks]

**QUESTION FIVE (20 MARKS)**

- a. Differentiate between intranet and extranet [4 Marks]
- b. Describe the impact of internet on businesses. [8 Marks]
- c. Explain the various protocols found in the application layer of the OSI model. [8 Marks]