

BINDURA UNIVERSITY OF SCIENCE EDUCATION
FACULTY OF SCIENCE EDUCATION
EDUCATIONAL TECHNOLOGY DEPARTMENT
BACHELOR OF SCIENCE EDUCATION IN COMPUTER SCIENCE

CS 212/EDT212 Data Communications and Networks

Time 3 hours

Instruction to candidates

Answer all questions, each question carries 20 marks

 JAN 2025

Question 1

- a. Explain five differences between ring and bus network topologies. [10]
- b. With the aid of a diagram, describe the TCP/IP layer model. [10]

Question 2

- a. Data communication infrastructure for long distance data transfer include radio transmission. Discuss the advantages and disadvantages of each of these media, in providing a range of services to clients. [10]
- b. Give disadvantages of each transmission mode over the other two: [10]
 - i. Simplex.
 - ii. Half Duplex.
 - iii. Full Duplex.

Question 3

a. What is encryption? [2]

b. Define the following terms.

i. Data encryption in transit. [2]

ii. Data encryption at rest. [2]

c. How does encryption work? [6]

d. Explain the following security threats:

i. Interruption. [2]

ii. Privacy-Breach. [2]

iii. Integrity. [2]

iv. Authenticity [2]

Question 4

- a. What is packet switching? [2]
- b. Give reasons why you would prefer to use packet switching. [5]
- c. Give reasons why you would not prefer packet switching. [5]
- d. Explain the following terms [8]
 - i. Server
 - ii. Clients
 - iii. Shared data
 - iv. Shared printers and other peripherals

Question 5

- a. Describe four network delay systems. [10]
- b. What is meant by Asynchronous transmission? [2]
- c. Give two examples of Asynchronous communication. [2]
- d. Explain the following TCP protocol features
 - i. Stream data transfer. [2]
 - ii. Reliability. [2]
 - iii. Multiplexing. [2]

END OF EXAMINATION