BINDURA UNIVERSITY OF SCIENCEEDUCATION

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   ~ AUG 2074

Answer all questions, each question carries 20 marks

Question 1

    a. What is data communications ?   [2]

    b. Define the following terms:

        i. Attenuation.   [2]

        ii. Dispersion.   [2]

        iii. Delay distortion.   [2]

    c. The effectiveness of a data communications system depends on **four** fundamental

characteristics name and explain each of them.   [4x3]

Question 2

a. Data communication infrastructure for long distance data transfer include microwave transmission. Discuss the advantages and disadvantages of each of this media, in providing a range of services to clients.   **[10]**

b. What are network attacks?   **[2]**

c. Assume that you are the Network Engineer of a company, explain how you can fight possible attacks.   **[8]**

Question 3

a. Explain the <u>three</u> Data Flow Directions in data communications giving examples in each.   **[10]**

b. Discuss uses of computer networks.   **[10]**

Question 4

a. In every form of communication there are common elements. Identify and explain <u>five</u> components that makes up a communication.   **[10]**

b. Compare and contrast the OSI Model and the TCP/IP layer model.   **[10]**

Question 5

    a. With the aid of a diagram explain the ring topology.   [4]

    b. Give **two** advantages and **two** disadvantages of a ring topology.   [6]

    c. What is data encryption?   [2]

    d. Define the following terms.

        i. Asynchronous transmission.   [2]

        ii. Synchronous transmission.   [2]

        iii. Firewall.   [2]

        iv. Modulation.   [2]

END OF EXAMINATION