Christian Brothers' High School, Lewisham

Year 12 Information Processes & Technology

Assessment Task 3: Communications Systems

June 2001

Outcomes Assessed: H1.1, H1.2, H2.1, H3.1, H5.2.

Weighting: 5%

Time Allowed: 1 Period

Instructions:
➢ Attempt all questions.
➢ Write only in blue or black pen.
➢ Answer questions in the spaces provided.

Result:

Part A		**/10**
Part B		**/10**
Part C		**/40**
Total		**/60**

Part A: Multiple Choice   (10 Marks)

Circle the alternative A, B, C, or D that *best* answers the following questions.

1. The basic requirements for any communication to occur between two parties are:

    (a) a message, a medium, a method of receiving the message, a sender, a receiver.
    (b) a message, a method of transmitting and receiving the message, a medium, a sender, a receiver;
    (c) a message, a method of transmitting the message, a receiver;
    (d) a message, a method of receiving the message, a sender.

2. The schools email address is: office@cbhslewisham.nsw.edu.au

    The segment 'cbhslewisham.nsw.edu.au' is the:

    a)   URL;
    b)   name of the resource file;
    c)   hypertext transfer protocol;
    d)   domain name.

3. It has been decided to network a small number of users in an office so that they can all access one database at the same time. A computer is required to control access to this database. What is this computer called?

    a)   Client Server;
    b)   File Server;
    c)   File / Client Server;
    d)   Print / Client Server.

4. The following seven-bit ASCII character and parity bit were transmitted as

ASCII character	Parity bit
1011010	0

    They were received as

ASCII character	Parity bit
1010010	1

    Which statement accurately reflects this situation?

    a)   The data were sent as odd parity and would be interpreted by the receiver as incorrect;
    b)   The data were sent as odd parity and would be interpreted by the receiver as correct;
    c)   The data were sent as even parity and would be interpreted by the receiver as incorrect;
    d)   The data were sent as even parity and would be interpreted by the receiver as correct.

5. The mode of communication which allows both participants to transmit and receive at the same time is known as:

    a) half-duplex;
    b) half-simplex;
    c) full-duplex;
    d) full-simplex.

6. The layout of a local area network is known as it's:
    a) node;
    b) topology;
    c) picture;
    d) star.

7. What name is given to the device used to allow the transfer of data between two LANs operating under the same protocol?

    a) Bridge;
    b) Converter;
    c) Gateway;
    d) Server.

8. Which set of variables must be compatible before two connected computers can transmit to each other?

    a) Baud rate, parity and number of data bits;
    b) Parity, number of data bits and computer platforms;
    c) Parity, baud rate and communications software package;
    d) Communications software package, computer platforms and baud rate.

9. The baud rate is the:

    (a) number of bits that can be transmitted in one second;
    (b) transmission of data at the same rate;
    (c) number of bauds that can be transmitted in one second.
    (d) maximum number of data symbols or electrical signals that can be transmitted in one second;

10. Electronic mail is:

    (a) only used on the information superhighway;
    (b) sending, receiving and storage of messages via facsimile;
    (c) sending, receiving and storage of messages via telecommunication;
    (d) the postal service using machines to electronically sort mail.

END OF PART A

Part B: Terminology   (10 Marks)

11. The table below contains a number of communication terms. Match the terms with their meaning by writing the number that corresponds to the correct meaning in the column provided.

Term	Number	Meaning
Serial		1. Communications in which there is one central coordinating node with connecting nodes to the central node.
Bus Network		2. A bit at the end of a character that signals the end of transmission of a character to the receiving computer.
Protocol		3. Communications in a continuous circle with nodes represented as points on the circumference.
Stop Bit		4. Data transmission in which the bits of each character are transmitted simultaneously using separate channels.
Star Network		5. Data transmission in which a unit of data is independent of a time code.
Synchronous		6. Communications in a straight line, with nodes represented as points off the straight line.
Parallel		7. A set of rules that governs the transfer of data between computers.
Asynchronous		8. The capacity of the channel, or transmission medium.
Bandwidth		9. Data transmission in which clocks in both receiving and transmitting terminals are used to ensure that data is processed at the same rate.
Ring Network		10. Data transmission in which the bits of each character are transmitted sequentially, one at a time, over a single channel or wire.

END OF PART B

Part C: Extended Responses   (40 Marks)

12. Draw a diagram in the box below to illustrate how a computer user in the USA would communicate in full duplex with a user in Sydney. Assume there is a satellite link. Your diagram should be clearly labeled to show each item of hardware and the connecting links. [3 marks]

13. Give one (1) advantage and one (1) disadvantage for each of the three (3) main local area topologies. [6 marks]

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14. Describe the tasks carried out by a Network Administrator. [2 marks]

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15. Name and describe the three (3) common methods for error detection. [6 marks]

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16. Name and describe three (3) different **wireless** transmission mediums. [6 marks]

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17. Explain the major difference between the following pairs of terms: [4 marks]

(i)   *simplex mode* and *half-duplex mode*

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(ii)   *fibre optic cable* and *coaxial cable*

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18. Name two (2) advantages and two (2) disadvantages of teleconferencing. [4 marks]

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19. Describe the collision-detection method used on an Ethernet. [2 marks]

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20. What is an Intranet? [1 mark]

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21. List the four (4) encoding and decoding possibilities in transmission. [2 marks]

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22. Describe two (2) issues arising from messaging systems. [4 marks]

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Good Luck!