

- 7 A theatre has a microphone on stage that is connected by cables to several speakers around the theatre. A person speaks into the microphone and their voice is output from the speakers.

Identify the most appropriate data transmission method for this purpose. Explain your choice.

Data transmission method

Explanation

[5]

- 4 A restaurant has an electronic ordering system. The system allows customers to select the food they want to order. The data for the order is transmitted across their network to a computer in the restaurant kitchen.

(a) The data is sent using serial full-duplex data transmission.

- (i) Give **two** reasons why serial full-duplex is a suitable data transmission method for the data.

1

2

[2]

- (ii) Give **one** improvement that would be made to the data transmission if parallel transmission is used instead of serial transmission.

[1]

- (b) A checksum is used to check the data for errors after transmission.

(i) Describe the process of the checksum error detection method.

[5]

- (ii) Identify **one** other error detection method that could be used to check for errors in the data.

[1]

- (c) A customer can also order food from home using the internet. The data for their order is broken down into packets and transmitted across the internet to the computer in the restaurant kitchen.

(i) Tick (✓) **one** box to show which item would **not** be included in a packet's header.

A destination address ☐

B originator's address ☐

C packet number ☐

D payload ☐

[1]

- (ii) The packets of data may need to be reordered when they arrive at the computer in the restaurant kitchen.

Explain why the packets of data may need to be reordered.

[2]

3 A programmer writes a program to store and sort all the data for the books in her home library.

(a) The programmer uses a high-level language to write the program.

One reason for writing the program using a high-level language is that it is easier to read and write.

Give **two** other reasons why the programmer chose to use a high-level language.

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[2]

(b) The programmer uses an integrated development environment (IDE) to write the program.

One function of the IDE is to provide a translator.

(i) Complete the statements about translators.

Use the terms from the list. Some of the terms will **not** be used. You should only use a term once.

all together	all	assembler	binary	error
executable file	executing	interrupt	line by line	
partial code	some	translating	whole code	

A compiler translates the at once before
..... it. A compiler produces an error report that displays
..... errors.

An interpreter translates and executes the code

An interpreter stops execution when an is found
and continues once it is corrected.

[5]

(ii) Give **two** other functions commonly found in an IDE.

State the role of each function.

Function 1

Role

.....

Function 2

Role

.....

[4]

(c) The programmer wants to print a list of all her books on paper.

(i) Identify a suitable type of printer that she could use to print this list.

..... [1]

(ii) The programmer needs to connect the printer to her computer. The printer is on the same desk as her computer.

Give a suitable method of data transmission that could be used to connect the computer to the printer.

Explain your choice.

Data transmission method

Explanation

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- (iii) An even parity check is used to detect errors in the data after it has been transmitted to the printer.

Describe how an even parity check detects an error.

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..... [4]