2   Bingwen's computer comes with an Operating System and utility software.

(a)   Draw **one** line from each utility software to its correct description.

Utility software	Description

Utility software

Disk formatter

Defragmentation

Back-up

Disk repair

Description

Scans software for errors and repairs the problems

Moves parts of files so that each file is contiguous in memory

Creates a copy of data that is no longer required

Sets up a disk so it is ready to store files

Scans for errors in a disk and corrects them

Creates a copy of data in case the original is lost

[4]

(b)   Identify **four** key management tasks that the Operating System will perform.

1 ....

2 ....

3 ....

4 ....

[4]

(d) Francis's team use language translators.

Complete the descriptions of language translators by writing the missing words.

.... are usually used when a high-level language program is complete. They translate all the code at the same time and then run the program.

They produce .... files that can be run without the source code.

.... translate one line of a high-level language program at a time, and then run that line of code. They are most useful while developing the programs because errors can be corrected and then the program continues from that line.

Assemblers are used to translate assembly code into ....

[4]

(c) Explain the benefits to the programmer of using program libraries.

....

....

....

....

....

....

....

.... [3]

8   Jay is developing a computer game that allows users to create stories.

(a)   Jay uses a language translator to develop the computer game.

(i)   Tick (✓) **one or more** boxes in each row to identify the language translator(s) each statement describes.

Statement	Assembler	Interpreter	Compiler
Translates and executes each line of source code one line at a time			
Translates low-level source code into machine code			
Must be present in memory to execute the code			
Translates high-level source code into low-level code			

[4]

(ii) Jay decides to use a compiler to develop the game.

Identify **two** benefits of using a compiler.

Benefit 1 ....

....

Benefit 2 ....

....

[2]

(b) The game generates a story which is stored as a text file.
Jay compresses the text file using lossless compression before sending it by email to his friend.

(i) Identify **two** reasons for compressing the text file.

1 ....

....

2 ....

....
[2]

(ii) Explain the reasons why Jay compresses the text file with lossless compression instead of lossy compression.

....

....

....

.... [2]

7 (a) A computer has an operating system (OS).

(i) State **three** memory management tasks performed by the OS.

1 ....

....

2 ....

....

3 ....

....
[3]

(ii) State **two** input/output device management tasks performed by the OS.

1 ....

....

2 ....

....
[2]

(b) Utility programs are also provided with the OS.

Identify **and** describe **two** different utility programs.

Utility program ....

Description ....

....

Utility program ....

Description ....

....
[4]

(c) Some operating systems include library programs.

State **three** benefits to a programmer of using library programs.

1 ....

....

2 ....

....

3 ....

....
[3]

10 Janaka is developing a new computer program. She decides to use an interpreter instead of a compiler.

(a) State **three** benefits of using an interpreter.

1 ....

....

2 ....

....

3 ....

....
[3]

(b) State **one** drawback of using an interpreter.

....

.... [1]

9 Utility programs are examples of system software.

(a) Complete the table by writing the name of the utility program for each description.

Description	Utility program
Reorganises files on a disk to improve efficiency	
Scans a hard disk to identify bad sectors	
Prepares a hard disk for first use	

[3]

1   Draw **one or more** lines to link each language translator to the most appropriate statement(s).

Language translator

Statements

Converts a low-level language instruction into binary

Stops as soon as it finds a syntax error

Compiler

Needs the source code to be present when the user's program is run

Reports all errors found at the end of the process

Corrects syntax errors as they are detected

Interpreter

Converts a high-level language into a different form

Creates an executable file

[3]