

10 A programmer is developing a computer program.

(a) Explain how the programmer can first use an interpreter **and** then a compiler to develop the computer program.

Interpreter

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Compiler

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[4]

(b) The programmer releases the program as Free Software.

Describe what is meant by Free Software.

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[2]

(c) A user downloads the computer program from the internet.

State what should be included as part of the download to make sure the program is authentic.

.....

[1]

8 Compilers and interpreters are used to translate programs written in a high-level language into a low-level language.

(a) State **two** disadvantages of using a compiler compared to an interpreter during program development.

- 1
-
- 2
-
- [2]

(b) Explain how a programmer benefits from using program libraries during program development.

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-
-
-
-
- [3]

(c) A programmer is developing an Operating System (OS).

Identify **two** types of software licence the programmer can use to allow other people to edit and redistribute the OS.

- 1
- 2
- [2]

(d) Memory management is one key management task performed by an OS.

Give **three** other key management tasks that are performed by an OS.

- 1
- 2
- 3
- [3]

3 A programmer is writing a program in a high-level language.

(a) Complete the description of compilers and interpreters by writing the missing words.

A compiler checks all the code before attempting to translate the program. If any errors are found, they are all reported at the same time and the program does not translate or run. If there are no errors found, the compiler produces which can run without access to the

An interpreter translates one line of code and then runs it, before moving to the next line of code. If the line of code has an error, the interpreter and displays the error. The programmer can correct the error and then the interpreter continues translating from that point.

[4]

(b) The programmer needs to keep the program files secure on their computer and during electronic data transmission over the internet. The files are protected by a password.

Complete the table by identifying **one** other method of keeping the files secure during electronic data transmission **and one** other method of keeping the files secure on the computer.

State how each method protects the data.

The methods must be different.

	Method	How the method protects the data
during transmission		
on the computer		

[4]

(c) The computer program allows users to play a game in a virtual world. Users can play the game from any computer with internet access using a web browser. The game allows users to interact with other users.

Explain the reasons why the statement ‘This computer game uses a client-server model’ is correct.

[4]

(d) Describe the possible consequences of the programmer **not** joining a professional ethical body.

[3]

- 4 A program is written in a high-level language by a team of three programmers using an Integrated Development Environment (IDE).

- (a) Describe how the programmers can use the debugging features of a typical IDE during the development of the program.

[4]

- (b)** The programmers created a new program library whilst developing the program.

Describe the benefits to the programmers of creating a program library.

[3]

- (c)** The file containing the final program code will be sent by email for beta testing.

Identify **one** security method that can be used to protect the program code from unauthorised access during email transfer.

Explain how your chosen method protects the program code.

Security method

Explanation

3 A software developer is writing a computer program.

(a) The developer uses an interpreter while writing the program code because it is easier for debugging.

Explain **one** reason why it is easier to debug the program code using an interpreter instead of a compiler.

[2]

(b) The program is ready to be sold to customers.

The developer uses a compiler because it creates an executable file.

Explain the reasons why the need to create an executable file makes the compiler the appropriate choice when the program is complete.

[3]

8 A programmer uses an Integrated Development Environment (IDE) to write a computer program. The IDE has both a compiler and an interpreter as built-in translators.

(a) The programmer decides to use the compiler when testing the final program.

Describe the benefits of using the compiler during testing.

[2]

(b) IDEs have many features other than built-in translators.

Complete the table by identifying **one other** common IDE feature that can be used for each purpose. Describe how each feature helps the user during program development.

Each feature must be different. Do **not** give translator as one of your features.

Purpose	IDE feature	Description
for coding		
for presentation		
for debugging		

(c) The programmer uses program libraries when developing the program.

Describe **two** benefits to the programmer of using program libraries.

- 1
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- 2
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[2]