

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
.....
.....
.....

Compiler
.....
.....
.....

[4]

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

Describe what is meant by Free Software.

.....
.....
.....
..... [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]

7 (a) Asymmetric encryption is a type of cryptography.

Identify **one** other type of cryptography.

.....

..... [1]

(b) An organisation holds two asymmetric encryption keys, which they intend to use to receive secure transmissions.

Explain how the organisation makes use of the two keys to receive a secure transmission.

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

- 9** A company requires a digital certificate to ensure the authenticity of its online communications.

Outline the process followed to acquire a digital certificate.

[4]

- 10** A stack, `StackArray`, is to be implemented using pseudocode, to store a maximum of 100 string items in an appropriate array. Declarations are required so that the stack has a beginning, an end and a maximum size. An array is also required to store the data.

- (a) Write **pseudocode** to declare the variables, constant and array required to implement the stack.

[3]

- (b) Write **pseudocode** for a procedure to initialise the top and bottom pointers of the stack to appropriate values.

(3)

[3]

7 A banker stores personal data on their work computer.

(a) The banker needs to transfer confidential data across the internet.

Identify and describe **one** method of restricting the risks posed by an unauthorised person intercepting the data whilst it is being transferred across the internet.

Method

Description

[3]

(b) The banker receives confidential data across the internet. The data includes a digital signature.

Explain how a digital signature can make sure the data has **not** been changed during transmission.

[5]

(c) The data that is transferred can also be verified using a checksum.

Explain how data can be verified using a checksum.

.....

.....

.....

.....

.....

..... [3]

9 Secure Socket Layer (SSL) and Transport Layer Security (TLS) are two protocols.

(a) State **two** functions of SSL/TLS.

1

.....

2

..... [2]

(b) Give **two** examples of situations where the use of SSL/TLS would be appropriate.

1

.....

2

..... [2]