NAME :..... DATE:.....

PTES 9618 Computer Science Worksheet DATA SECURITY & METHODS

Source: 9618_s23_qp_33.pdf (Page 9)

9 **(a)** Encryption is used to alter data into a form that makes it meaningless if intercepted.

Describe the purpose of asymmetric key cryptography.

.....

.....

.....

..... [2]

(b) Identify **two** benefits and **two** drawbacks of quantum cryptography.

Benefit 1 .....

.....

Benefit 2 .....

.....

Drawback 1 .....

.....

Drawback 2 .....

.....

[4]

Source: 9618_w22_qp_32.pdf (Page 6)

6 **(a)** State **two** differences between symmetric and asymmetric encryption.

.....

.....

.....

..... [2]

(b) Explain the process by which an organisation may acquire its digital certificate.

.....

.....

.....

.....

.....

.....

.....

..... [4]

Source: 9618_s24_qp_31.pdf (Page 7)

(b) Explain the role of a digital certificate in creating a digital signature.

.....

.....

.....

..... [2]

Source: 9618_s22_qp_32.pdf (Page 10)

7 A digital signature is used to validate the authenticity of an electronic message.

In order to produce a digital signature, a digital certificate is required.

(a) State how a digital certificate is obtained.

.....

.....

.....

.....

.....

..... [3]

(b) **(i)** Explain how a digital signature is produced before the message is sent.

.....

.....

.....

.....

.....

.....

.....

..... [3]

(ii) Explain how the digital signature can be checked on receipt to ensure that the message has not been altered during transmission.

.....

.....

.....

.....

.....

.....

.....

..... [4]

Source: 9618_w25_qp_32.pdf (Page 7)

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]

Source: 9618_s24_qp_32.pdf (Page 5)

4 Sheila has a customer called Fred. Fred wants to send Sheila a confidential document as part of a transaction.

Explain how Fred uses asymmetric encryption to send his document securely.

.....

.....

.....

.....

.....

.....

.....

..... [4]

Source: 9618_s26_qp_32.pdf (Page 8)

8 **(a)** Describe the differences between symmetric key and asymmetric key cryptography.

.....

.....

.....

.....

.....

..... [3]

(b) Outline the process that would allow a business to use encryption keys to send a verified message to a group of people.

.....

.....

.....

.....

.....

.....

.....

..... [4]

Source: 9618_s26_qp_31.pdf (Page 9)

8 **(a)** Define the following asymmetric key encryption terms:

(i) cipher text

.....

..... [1]

(ii) public key.

.....

.....

..... [1]

(b) Outline the process that would allow an individual to use asymmetric key encryption to send a private message to an organisation.

.....

.....

.....

.....

.....

.....

.....

..... [4]