

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.

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..... [2]

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

Benefit 1

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Benefit 2

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Drawback 1

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Drawback 2

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[4]

Source: 9618_w22_qp_32.pdf (Page 6)

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

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

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[Source: 9618 s24 qp 31.pdf \(Page 7\)](#)

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

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[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.

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

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

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Source: 9618_w25_qp_32.pdf (Page 7)

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

Identify **one** other type of cryptography.

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- (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.

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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.

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Source: 9618_s26_qp_32.pdf (Page 8)

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

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

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Source: 9618_s26_qp_31.pdf (Page 9)

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

- (i) cipher text

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- (ii) public key.

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

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