MODULE D DATA TRANSMISSION · D6

Encryption

Original practice questions · 21 marks · ~25 minutes · Cambridge 0478 syllabus 2.3.1, 2.3.2

Name _____ Date _____

Instructions. Answer all questions in the spaces provided. The marks for each part are shown in brackets [ ]. The total for this worksheet is **21 marks**.

1

Total: 4 marks

An online shop sends customers' order details across the internet to its warehouse.

(a) Give **one** reason why the order details are encrypted before they are transmitted. **[1]**

(b) State the name given to the data after it has been encrypted. **[1]**

(c) Explain why encryption does **not** stop the order details being intercepted, but still protects them. **[2]**

2 Total: 5 marks

(a) Complete the sentences about symmetric encryption, using words from the list. Not all words are used. **[5]**

algorithm · cipher · different · intercepted · plain · private · same · sent

The data before encryption is called ..... text.

An encryption ..... and a key are used to turn it into ..... text.

Symmetric encryption uses the ..... key to encrypt and to decrypt the data.

The key has to be ..... to the receiver, so it could be intercepted.

3 Total: 4 marks

A design agency sends confidential drawings to a printing company. The printing company has a public key and a private key. The data is sent using asymmetric encryption.

(a) Identify the key the design agency uses to encrypt the drawings. **[1]**

(b) Identify the key that is used to decrypt the drawings. **[1]**

(c) Explain why it does not matter if someone else obtains the printing company's public key. **[2]**

4 Total: 4 marks

(a) Tick (✓) **one** box in each row to show whether each statement applies to symmetric encryption, asymmetric encryption, or both. **[4]**

Statement	Symmetric	Asymmetric	Both
Uses a public key and a private key			
Turns plain text into cipher text			
The one key used must be shared with the receiver			
The key used to decrypt the data is never sent to the sender			

5 **Total: 4 marks**

An accountancy firm is choosing between symmetric and asymmetric encryption to send clients' records to a partner office.

(a) Describe how the records would be encrypted and decrypted using asymmetric encryption. **[4]**

Total for this worksheet: 21 marks