Name: Class: Mark:

1. Foxhalls is a letting agency advertising and arranging property sales and rentals. The manager wants to ensure that they are complying with the Data Protection Act in relation to keeping personal data safe and secure.

Gemma, an IT consultant, has been asked to advise the management on security issues. In particular she says that data should be encrypted when stored on their systems or when transmitted.

(a) State what is meant by the following terms with respect to encryption:

Plaintext: [1]

Key: [1]

(b) Foxhalls store their data on encrypted hard disks. Explain how this helps to keep   
their data secure. [2]

(c) Explain **one** advantage and **one** disadvantage of the use of strong encryption for communications. [4]

Advantage:

Disadvantage:

(d) The HTTPS protocol is used for secure communications between the company website and users.

(i) Describe the purpose of a communications protocol. [2]

(ii) Describe how the HTTPS protocol operates to ensure secure data transmission over the Web. [4]

(iii) Explain the purpose of a digital certificate in this situation. [2]

(e) Foxhalls management are currently developing a website which will allow their rental customers to report problems, such as leaks, in their rental properties. Tenants will need to log in to the system before they can use it.

Gemma has advised Foxhalls that they must only store hashed passwords for users in their database. Explain how the use of hashed passwords keeps data more secure. [4]

[Total 20 marks]