# Answers

Task 1

An online bank allows users to log in if they have the following information:

* Their identification number
* A security number
* A password

(a) Explain why this is a one-factor authentication

All the answers required use one factor – which is something the user knows

(b) When the user wishes to make a payment, the bank requires them to use a card reader and then enter the security code given. How many factors are used in the whole system?

Two – the first factor (something you know) is used to log in, then the second factor (something you have) is the card used in the card reader.

(c) (i) Write down another example where users need to be identified before being allowed access to a digital system, or physical access to a particular location.

Student answers will vary. Some suggestions are school logins, logins to online services or apps, phone logins, entry to business premises, home alarm systems

(ii) How many factors are used in authenticating users?

Dependent on student answer.

(iii) Explain how this system authenticates the user.

Dependent on student answer.

Task 2

Describe **five** advantages and **three** disadvantages of biometric methods as a method of access control to areas of a building.

Use the website <https://biometrictoday.com/10-advantages-disadvantages-biometrics-technology/> to help to answer the question.

**Advantages:**

* Very difficult to hack, unlike passwords and codes.
* Can’t be lost, unlike a card.
* Accurate - most biometric methods will recognise an individual whenever they use the system.
* Convenient – you are not required to memorise a password or code number.
* Time saving – allowing faster access than typing in password.
* (other possible answers)

**Disadvantages:**

* Biometric methods can have two types of error: False Acceptance and False Rejection, and the error rate in some cases is high enough to create chaos.
* Delay – when people are not familiar with the system.
* Unhygienic – e.g. fingerprint recognition.
* People with physical disabilities may not be able to use the system, e.g. a blind person may have difficulties finding the device, a wheelchair user may find a face recognition device placed too high.
* (other possible answers)

Task 3

(a) Fisher Electronics is a large electronics factory. They have recently installed a new biometric security system, which uses fingerprint recognition to permit authorised individuals to access certain areas.

The system is also used to record employees checking in and out at the beginning and end of their shift.

Some employees are complaining about this system.

Suggest reasons why some employees are complaining.

They may feel it is unhygienic if others before them have not got clean hands.

It may slow down entry to areas they need to access.

They may dislike having information about their movements being collected.

They may not want to have their biometric details stored by the company.

(b) Describe the procedure that will need to carry out when a new employee joins the company and what details they are likely to store about them.

The employee will have to have their fingerprint taken and recorded. The access to the system may then be tested to ensure that the fingerprint is recognised and allows access.

Personal details about the employee will also be recorded. Their full name, DOB, nationality, visa details if required, address, phone number, role in company, pay rate, NI number or equivalent, date joined, pay rate etc.

Once they are employed, the system may record daily hours worked, sick days, holidays due and taken, absences.

**Task 4**

Leaf Living is a company that produce wooden tree houses. They have a number of designs for their houses that need to be kept confidential to only those who are in the factory manufacturing the tree houses. They also have financial records that should only be seen by the finance team.

Explain **two** ways that using file permissions helps the company to keep their documents secure.

The file permissions can be set to read only for people who don’t need to change them so that there is less chance of accidental modification / deletion.

Company employees can be put into groups (such as finance or manufacturing) so that only certain groups can have access to the documents – this can protect sensitive or confidential information. For example, only those in manufacturing need to see documents for the design of the buildings and only those in finance need to see the financial records.

Task 5

Look up the website <https://en.wikipedia.org/wiki/Disaster_recovery_plan> to read about creating a disaster recovery plan.

A small online retailer with six employees works out of rented offices. Each employee has a PC on their desk.

Describe ways in which the company can reduce the risk of disruption or data loss in the event of a natural disaster such as a fire or flood.

They need to have a written disaster recovery plan, so they know what to do in the event of a disaster.

They need to appoint a person who will be in charge of implementing the disaster plan if it is ever needed.

They should have backup and restore procedures in place so that they can restore their system from a full backup made before the disaster.

They need to ensure their data is backed up in real time, and offsite, as they cannot afford to lose customer transactions. This could be done by saving all data in the cloud as well as on local hard drives, using a cloud service company such as Microsoft Azure, Amazon AWS or Dropbox.

They could have a reciprocal agreement with another company to use space and hardware in their office until they are up and running again.