

## LO1 How ICT can be used to meet business needs

# 1 How ICT is used by individuals and businesses

## How ICT is used

**LINK TO STUDENT BOOK** pages 1–6

- 1 To answer this question, you should provide a list of **four** or more jobs and then describe how IT could be used to do each job. The list could include, e.g.:
  - answering the telephone – using voice telephones, VoIP, mobile phone communications
  - entering or checking a patient's details – using a database on a computer
  - checking appointments – using a database on a computer
  - receiving or sending information to another doctor – over the local network
  - locating patient details for the doctor – using the database on a computer
- 2 To answer this question, you should provide a list of **four** or more uses of ICT. Uses could include, e.g.:
  - using a mobile phone to check the location of the house with another colleague
  - using SatNav to find the house
  - reporting back to the office that the representative has arrived at the house, using a smartphone
  - using a digital camera or a smartphone to take photos of the outside and inside of the house
  - using a portable computing device to write up notes while at the house
  - using a digital recorder or voice recorder app to record comments and notes by speaking
  - sending the photos and notes back to office after completing the visit.

## The difference between desktop and portable systems

LINK TO STUDENT BOOK pages 6–11

3 Your answers could include the following.

Desktop computers:

- usually, but not necessarily, have a higher specification than a laptop
- are fixed in one place on a desk so can be secured
- can have larger monitors than laptops for ease of viewing documents
- have a separate mouse and keyboard for more ergonomic use to try and avoid health and safety issues
- can be more easily maintained and upgraded without the need for complete replacement.

## Portable computer systems

LINK TO STUDENT BOOK pages 6–11

4 The answers to this question complement those for Question 3. Your answers could include the following.

Laptops:

- are portable because they are light and small
- can carry out all the office tasks necessary
- do not need a power cable connected to the mains electricity supply, but can use battery power instead
- can connect to the internet while away from an office so the user can keep in contact with the office by email or use the laptop to access files stored on the company network or in the 'cloud'.

5 Your answers could include:

- netbooks are smaller in size so the keyboard and pointing device can be more awkward to use
- the monitor is often much smaller so documents are more difficult to read
- netbooks often have a lower specification, e.g. slower CPU, and less memory than laptops so software applications run more slowly.

The answers to this question are all based on the lower specification so make sure that you can quote at least **three** areas of a lower specification.

6 Your answers could include the following.

Tablet computers:

- are portable, because they are light and small, so can be carried easily
- are small enough to be put into lockers or sports bags
- can carry out all the tasks necessary for the coach to perform his/her job
- can run on battery power
- can connect to the internet while away from an office so the coach can keep in contact with the leisure centre by email or use the laptop to access files stored on the company network or in the 'cloud'.
- do not need a keyboard or mouse – the touch screen is much easier to use while mobile.

## Advantages and disadvantages of different types of computer system

**LINK TO STUDENT BOOK** pages 12–13

7 Your answers could include:

- the devices are smaller in size so components have to be smaller – current manufacturing processes mean these are not so advanced as larger components
- small, advanced components are expensive so lower specification components are used to keep the prices down
- smaller monitors are a necessity to keep the size down.

8 Your answers could include:

- the devices are smaller, and so they are more difficult to work on
- the cases are usually sealed to make them water and dust proof
- components are usually specialised to the make and model, so upgrades and repairs are more difficult.

9 Your answers could include:

- a smartphone and tablet computer are portable and can be carried about more easily than a desktop computer
- a smartphone and tablet computer can carry out most of the tasks required when on the move
- the manager does not have to return to the desktop computer every time to carry out a computing task.

## Input devices

LINK TO STUDENT BOOK pages 14–17

**10** Your answers could include:

- due to a disability some people cannot use a normal keyboard
- normal keyboards may not be suitable for use, for example, when surveying a building site or geological area
- normal keyboards will not work properly, for example underwater, so marine scientists need specialist equipment.

**11** Your answers could include:

- at a supermarket checkout for entering the details of the items being sold
- on bank card reader for entering the PIN
- at a petrol station when paying for fuel at the pump
- to enter an access code at a security door.

**12** Laptops do not have a mouse so the touchpad acts as the pointing and selecting device.

**13 a)** A supermarket. Your answers could include:

- to control the goods trucks in a large warehouse where goods are received before going to the shelves
- to control the large video displays used for advertising
- to control video players when showing presentations to staff and customers
- to control the doors in the event of emergency evacuations.

**b)** An estate agent offices. Your answers could include:

- to control the large video displays in windows used for advertising
- to control video players when showing presentations to staff and customers.

**c)** A swimming coach. Your answers could include:

- to control the video displays used for explaining techniques
- to control video players when showing presentations to staff and players.

**14** If the Chip & PIN is not working because, for example, the chip is damaged or the data corrupted, or there is no chip (some bank cards issued by countries other than the UK do not have a chip), the data can be read from the magnetic strip.

## Output devices

LINK TO STUDENT BOOK pages 18–19

15 A colour inkjet would be most suitable but a colour laser would also do the job. It would have to be colour as black and white posters do not look as good. But the choice of inkjet or laser would depend on the number needed and the relative costs of using the printers: lasers can be fast and print more copies faster, but inkjets are cheaper to buy and use when only a few copies are needed.

Your answer should make a choice, give a reason and say why this is so.

16 Connect the projector to a computer to show a slideshow or video of the new range. The presentation could be shown to an audience and the salesperson can stand at the front and talk it through.

## Storage devices

LINK TO STUDENT BOOK pages 20–21

17 USB memory sticks are smaller and easier to carry in pockets, are not easily damaged compared to DVD-Rs and are re-writable so can be used again. Data is also written to them faster than to DVD-Rs so less time is taken when copying the files.

## Connectivity devices

LINK TO STUDENT BOOK pages 23–24

18 Your answer **must** include:

- a wireless network interface card in the smartphone – most have these built in
- a wireless access point (WAP) to allow connection to the network
- a router to connect the network to the internet

Often, the network will have switches and/or hubs but these are not always required.

## Choosing and configuring systems

LINK TO STUDENT BOOK pages 24–25

19 Office tasks do not need the performance of high performance video gaming computer systems as they will run quite well on much lower specification computers.

20 Your answers could include details of editing video of visitor activities to show them how to improve, crafting videos of events for promotional material, or any other appropriate video creation task.

21 Your answers could include:

- the use of specialist, for example braille, keyboards to enter text, etc.
- the use of large monitors with zoom software to see the text
- the use of text-to-speech software along with microphones to capture the sounds of voices
- the use of speech-to-text software along with speakers/headphones to output the sounds of voices.
- the use of a braille printer to output hardcopy of the emails.

## Using computer systems and devices for remote working

**LINK TO STUDENT BOOK** pages 27–28

22 a) Your answers could include:

- to access images of the carpets to show to the customer
- to access prices of carpets
- to check on availability of carpets
- to send quotes, etc., directly to the finance/sales team back at the carpet business offices.

b) Your answers could include:

- to send photos and notes, etc., directly to the sales team back at the offices
- to show potential sellers how their house might be advertised
- to access any other documents such as contracts that might be needed.

c) Your answers could include:

- to send memos and notes, etc., directly to his/her team back at the offices or at other supermarkets
- to access any documents such as contracts, sales materials, letters that might be needed.

## System software

**LINK TO STUDENT BOOK** pages 37–38

23 Your answer **must** state:

Graphical User Interface

24 Your answer **must** state:

Window(s)

Icon(s)

Menu(s)

Pointing device

## Application software

**LINK TO STUDENT BOOK** pages 38–41

- 25** Spreadsheets are designed for manipulating numbers in, for example, calculations using formulas.
- 26** Databases are designed for manipulating data in many ways: sorting, searching, producing reports.
- 27** Apps are software applications designed for smartphones or tablet computers.
- 28** Slideshow or multimedia software – because it can be used to combine text, images, sound and video into slides that can be changed manually or automatically or made into a video for display to an audience.  
Do not use a brand name such as ‘PowerPoint®’; you are expected to know the type of software.
- 29** Photo-editing software could be used to adjust the images taken by a web cam or digital camera for use on posters or membership cards. Adjustments could be, for example, removing red-eye, cropping the photo, or adjusting the light levels – any appropriate adjustment would be accepted.

## 2 Factors affecting the choice of system

### How various factors affect the choice of a computer system

**LINK TO STUDENT BOOK** pages 25–26

- 30** You should carefully explain the differences between the devices with reference to the need for her to be mobile while the office workers will stay in their offices. Refer to the portability, capabilities and costs of the devices.

## 3 Connecting peripherals to a computer system

### Connecting computer peripherals

**LINK TO STUDENT BOOK** pages 29–30

- 31** Wi-Fi has a greater bandwidth and range than Bluetooth®.
- 32** There is no need for the higher bandwidth and range of Wi-Fi. The transmissions will not interfere with or be interfered with by other devices as the range is small.

## 4 Connecting to a wireless network

### Connecting devices to wireless networks

**LINK TO STUDENT BOOK** pages 31–32

- 33** 3G does not have a large bandwidth so the data is often not streamed 'fast' enough with the result that the stream cannot keep up – the image then looks pixelated or stops as data is missing.
- 34** WPA2 is a type of security that uses encryption when sending data over a wireless network. WPA2 is more secure than other types of encryption.

### Remote access to wireless networks

**LINK TO STUDENT BOOK** pages 33–34

- 35** Public wireless networks are less secure than private ones so the documents may be intercepted by unauthorised users.
- 36** A firewall will monitor the traffic going into and out of the network. A set of rules will dictate what traffic can enter and what traffic can leave so unauthorised access is made more difficult and the activities of workers can be controlled. For example, the use of the web by employees can be restricted and/or recorded in a log file.

### Monitoring employees

**LINK TO STUDENT BOOK** pages 35–37

- 37** The location of a smartphone can be discovered by loading software to the phone that records its GPS location, and the phone can be set up to send the location back to the company. A much simpler method is to phone a salesman on the phone and ask where he is, or ask him to phone his location into the office!

## LO2 How to work with information and data to meet specific business needs

# 1 Data capture methods

## Data

**LINK TO STUDENT BOOK** pages 52–55

- 1 Telephone 'numbers' can contain characters such as spaces and + signs; they can also have leading zeros. Setting the data type as text is the most suitable way to store telephone numbers in a database.
- 2 Coding data will save space in the database (for example, using M or F instead of Male or Female) and will allow faster processing of the data: such as data entry, searching and sorting.
- 3 It is important to make sure that all data entered into a database is as accurate as possible. Validation will not make sure that the data is correct (a date of birth can still be wrong, for example 25<sup>th</sup> March 1969 instead of 26<sup>th</sup> March 1969) but will make sure that suitable data is entered into a database and is
  - within the correct range (e.g. the date is between 1 and 31 for the day of the month) and
  - in the correct format (e.g. dd/mm/yyyy for day/month/year so a date is entered as 26/03/1969 and not as 03/26/1969)

## How data is captured

**LINK TO STUDENT BOOK** pages 42–48

- 4 Giving the person who is filling in the form some boxes to write in means that the collected data is in the format that you require and will not have to be altered or amended before it is entered into a database. For example, 26 03 1969 can be quickly typed as it does not need to be translated mentally, but March 26<sup>th</sup>, nineteen sixty-nine does. This speeds up data entry and reduces the possibility of human error.

## Paper forms and online forms

**LINK TO STUDENT BOOK** pages 42–43

- 5 Using an online form allows data to be entered directly into a database without the need to check a paper form, read it through and then copy the data into a database. The person giving the details can also be asked to check the accuracy of the data as it is entered. Also, there are no paper forms left lying around for others to see or to be disposed of.

## Automated data capture

LINK TO STUDENT BOOK pages 46–51

- 6 Sensors, such as temperature and humidity sensors, are placed in and around the areas to be air-conditioned. The sensors collect data about the temperature and humidity and send the data to the computer system (the data has to be changed from analogue to digital before it can be used). The computer system monitors the data from the sensors.
- 7 It is important to keep the conditions in a swimming pool as near to the ideal conditions as possible. Sensors, such as temperature and pH sensors, are used to collect the data automatically (this avoids the need for humans to collect the data) and send it to a computer system that can adjust the temperature and the pH to try and keep it as close to the ideal settings as possible. The data from the sensors can also be displayed on large screens for the swimmers to see.

## 2 Storing data

### File formats

LINK TO STUDENT BOOK pages 55–58

- 8 A file type that can be opened by almost any computer system, and that allows small file sizes to be used would be best. The most common file type used for this is the portable document format designed by Adobe: .pdf.
- 9 .mp3 files compress the data by removing some of the sounds that are supposedly not heard; .acc files are lossless so all the sounds are kept intact.

### Data security

LINK TO STUDENT BOOK pages 59–62

- 10 Encrypted data has been scrambled using a 'key' and is meaningless unless unencrypted using the same key. People looking at unencrypted data see a meaningless set of characters.
- 11 HyperText Transfer Protocol Secure  
It is used to transfer data that has been encrypted over the internet.

# 3 Data transfer

## Data transferring technologies

**LINK TO STUDENT BOOK** pages 63–64

- 12** The internet is a global collection of computers connected together in a network that uses public telecommunications systems to transfer data between the computers.
- 13** Companies connect their devices in a network because:
- files can easily be shared between computers by sending them over the network
  - files can be stored on a central file server and accessed over the network
  - printers and other peripherals can be shared
  - software can be shared and updated more easily and quickly over a network
  - central copies of software can be used
  - security and anti-virus measures can be applied to all the computers from a central server
  - backups of data can be carried out over the network rather than having to backup each computer separately
  - internet access can be shared by connecting the whole network to the internet
  - employees can have access to email, web browsing and other network and internet services; and these can be monitored and controlled.
- 14** 4G networks have a larger bandwidth and can transfer more data in a given time than 3G networks.

## Factors affecting the choice of data transfer method

**LINK TO STUDENT BOOK** pages 65–68

- 15** USB memory sticks can hold more data than CDs, take less time to transfer data to and from the computer and are less likely to be damaged than CDs. Also, most computers have USB ports but not all have CD drives.
- 16** Email is not secure and confidential documents may be intercepted if sent by email.
- 17** Wired networks usually have a larger bandwidth than wireless networks and can transfer more data in a given time so the speed seems faster.

## 4 Backups and recovery

### Backups

**LINK TO STUDENT BOOK** pages 67–70

- 18** Customer data, such as financial transactions, are changing every second and money is moved between accounts, taken from or added to accounts so banks must make sure that all the data about the transactions is not lost. Creating backups of this data every few minutes or less will make sure that the data is safe and secure.
- 19** This is a backup that records only the changes that have been made since the last complete backup.
- 20** A disk image is a complete copy of a disk. It is not just a copy of the files on the disk but also of the disk file structure.

### Factors affecting the choice of method of backup

**LINK TO STUDENT BOOK** page 71

- 21** Tape systems are expensive to purchase and the tapes are also expensive to buy. Tape systems also have extremely large capacities which are not needed at home. DVD-Rs are cheap to buy, most computers have, or can use, a DVD-rewriter device and the disks are easy to store.
- 22** USB memory sticks can have a larger capacity, are cheap to buy, most computers have or can use a USB device and the sticks are easy to store.

## LO3 Know how ICT can be used to support business working practices

# 1 How businesses can communicate with employees, and other working remotely

## Communication methods and how they support businesses

**LINK TO STUDENT BOOK** pages 73–76

- 1 To answer this question, you should focus on the fact that the employee works remotely and state the advantages to the business rather than the employee, for example:
  - calls can be taken by the employee wherever they are – as long as there is a mobile phone signal.
  - voicemail messages can be left and retrieved.
  - a text (SMS) can be sent to the employee by the business.
- 2 Your answers could include:
  - attachments can be sent, for example marketing leaflets
  - special offers can be sent, for example money-off codes
  - email addresses can be added to a distribution list, so the same marketing material can be sent to many customers at the same time
  - links to a website can be included in the email to provide extra information/details.
- 3 Your answers could include:
  - employees can access, view and add to the bulletin board, for example to share ideas
  - any comments made are available instantly for other users to view
  - topics can be set up on the bulletin board which relate to, for example, specific projects/job roles.

## Advantages and disadvantages of communication methods

**LINK TO STUDENT BOOK** pages 77–79

- 4 The focus of this question is the customer and not the business. Your answers could include:
- attachments, such as advertising brochures, can be received
  - emails can be accessed anywhere in the world so the customer is always up-to-date
  - emails can be accessed on many different devices, such as tablet, smartphone, and laptop
  - the customer can use email to contact the business and get a written response which can be referred to later
  - emails can provide an audit trail of communication between the customer and the business.
- 5 Your answers could include:
- the equipment can fail or go off-line during the video conference
  - to take part in the video conference everyone must have the required equipment
  - someone needs to be employed to setup and maintain the equipment, and training may be needed to use the equipment.
- 6 Your answers could include the following.
- Benefits:
- conversations can be held anywhere as long as there is a mobile phone signal
  - SMS (texts) can be sent and received
  - images can be sent and received
  - voicemail messages can be left and retrieved.
- Drawbacks:
- time differences need to be considered if the employee is in a different country
  - the network signal may be weak or down so the employee cannot be contacted.
- 7 Your answers could include:
- the calls, PC-to-PC are free, if the business has a DSL or cable broadband connection, so saving money over other types of phone calls
  - calls can be made wherever there is a broadband connection by signing into the VoIP account – this is useful to communicate with employees who work remotely
  - data/images/files can be sent during the VoIP call.

## Email and email etiquette

**LINK TO STUDENT BOOK** pages 81–84

- 8 Your answers could include:
- to ensure all customers receive information
  - different distribution lists can contain specific customers to enable targeted communications
  - changes can be made to customer details and the customers will still receive emails.
- 9 Your answers could include:
- if an email is to be sent to lots of people but the sender does not want their email addresses to be shown
  - when information is being sent and email addresses need to be kept private – this complies with the DPA
  - to enable an audit trail of emails to be kept.
- 10 Your answers could include:
- the receiver may not be able to open some attachments as they may not have the appropriate software
  - attachments can contain a virus so the receiving system could become infected
  - attachments increase the size of an email and could make it slow to send.
- 11 Your answers could include:
- mention should be made in the email that an attachment is included
  - check with the receiver that they have the correct software to be able to open the attachment
  - tell the receiver the format of the attachment.

## 2 How diary management software can be used to organise work schedules

### Diary management software (DMS)

**LINK TO STUDENT BOOK** pages 85–88

- 12 Your answers could include:
- create appointments or meetings
  - invite participants
  - create tasks or projects
  - create to-do lists
  - set reminders.

- 13** Your answers could include:
- the DMS can be accessed wherever the employees are based through, for example, a mobile app
  - changes made to the DMS can be stored in the cloud
  - files needed to complete set tasks can be stored in the cloud.
- 14** A closed DMS can only be accessed by those people with a username and password.
- 15** Closed access rights means that users are able to view, add or amend the facilities of the DMS.
- Open access rights means people can only view the DMS.

## 3 Creating and editing documents collaboratively

### Creating and editing documents collaboratively

**LINK TO STUDENT BOOK** pages 88–91

- 16** A formal document has a formal structure/layout and uses formal language and words. An example of a formal document is a business letter.
- 17** A shared access area is an area where documents/files, etc., can be stored and accessed by a group of people.
- 18** Your answer could include:
- more than one person can make comments, and everyone can see them
  - the comments made by each person can be identified, for example by their initials
  - comments are saved with the file until they are deleted.
- 19** The markup version of a document shows where deletions, insertions and formatting changes have been made. The word-processing package will insert marks and details to show these.

## LO4 Understand how legal, ethical, safety and security issues affect how computers should be used

# 1 How legislation affects business computer users

## Computer legislation and the CMA

[LINK TO STUDENT BOOK page 100](#)

- 1 Hacking is the illegal access to files and data stored on a computer system.
- 2 Part 3 of the CMA could be used in this case. Part 3 relates to someone illegally accessing the network *with the intent to impair or with recklessness as to impairing the operation of a computer system*. If the person is found then the penalty is a prison term, large fines or both.

## Health and safety legislation

[LINK TO STUDENT BOOK pages 94–96](#)

- 3 Your answers could include:
  - analyse workstations and assess and reduce risks; if risks are found then action must be taken to make the area safe
  - ensure workstations meet the minimum requirements; workstations should include enough space for the computer equipment, adjustable chairs and suitable lighting should also be provided
  - plan work so that there are breaks or changes of activity; employees should not be expected to sit at their workstations all day – breaks or changes of activity should be scheduled into the working day
  - arrange and pay for eye tests and glasses if special ones are needed; employees who work with computers can have eye tests arranged and paid for and if special glasses are needed to use the computer equipment, then the employer should pay for these
  - provide health and safety training and information; training on how to use equipment, such as workstations, correctly should be provided, training should also cover how to minimise risks to health.

- 4 Your answers could include:
- RSI (repetitive strain injury) – schedule regular breaks into the working day / provide ergonomic equipment, for example keyboard and mouse
  - headache/eye strain – use an anti-glare screen / use swivel bases on screens to deflect light / adjust brightness and contrast on screens / have regular eye tests
  - neck and back pain – schedule regular breaks into the working day / use an adjustable chair / walk round to ease strain on muscles in the back and shoulders.

## The Data Protection Act (DPA)

[LINK TO STUDENT BOOK pages 96–99](#)

- 5 The **data controller** is the person who needs to apply for permission for the business to collect and store data. They will decide what data needs to be collected, what it will be used for and how it will be used. This will usually be an employee of the business.
- A **data subject** is a person the data is being stored about. This may be customers or employees of the business
- 6 Your answers could include:
- provides a way for the data owners to complain and claim compensation if their personal data is misused
  - sets out rules (8 principles) stating how the data should be stored and used by the business.

## The Copyright, Designs and Patents Act

[LINK TO STUDENT BOOK page 99](#)

- 7 The software must be purchased with the correct software license. For example, if the software is to be installed on a network, then a network license should be purchased.
- 8 Your answers could include:
- obtain permission from the copyright holder
  - acknowledge the copyright holder in the presentation
  - a fee for using the image may have to be paid.

## 2 How moral and ethical issues affect business computer users

### Personal data and cyber bullying

**LINK TO STUDENT BOOK** pages 101–3

- 9 Your answers could include:
- the threat of identity theft – this means that someone else takes over their identity
  - personal data can be stolen and used by criminals to commit crime using someone else's name.
- 10 A file name policy means that every file is saved using rules. Everyone working in a business will know what is in the file. This can stop personal and private data being 'lost' in computer files.
- 11 When one person, or a group of people, tries to embarrass someone else using technology such as a mobile phone or the internet.

### Monitoring of individuals by organisations

**LINK TO STUDENT BOOK** pages 103–6

- 12 Your answers could include:
- to monitor who opens doors within the premises
  - different access rights can be granted to open each door
  - to provide an audit trail of by who, and when each door was opened.
- 13 Criminals can use key logging on public computers to steal passwords and credit card information.
- 14 It can invade the privacy of the phone user as it allows someone to check where the person is without their consent.
- 15 A cookie is a text file which contains a site name and unique user ID.
- 16 Your answers could include:
- enables an audit trail to be kept in case of future issues or questions
  - for training employees to deal with complicated calls
  - to assist in enforcing policies in taking or making personal calls during working hours.

**17** Your answers could include:

- keeps them on track with the tasks they have to complete
- improves their productivity
- enables employers to reward those employees who are most productive
- may encourage some employees to work longer than their contacted hours.

## 3 The implication and consequences for organisations of data loss, corruption and theft

### Data loss, corruption and theft

**LINK TO STUDENT BOOK** pages 107–9

**18** Your answers could include:

- they could be given a formal written warning
- they may be demoted in job role with a reduction in salary
- they may be sacked from their job
- their reference will state why they were sacked which may mean they are unable to find another job.

**19** Your answer could include:

- they may become victims of identity theft
- they may lose confidence in the business and move their custom to another business – this may take time.

**20** Your answers could include:

- the business may have to pay compensation to the owners of the data which is stolen
- if the business has to pay compensation, to one or more people, it may have to close as they may not be able to afford this
- security will have to be increased – this can be expensive in terms of purchase, installation and maintenance costs
- their customers may lose confidence and move their custom elsewhere.

**21** If the hacker can be traced, the CMA enables them to be prosecuted. The hacker can be sent to prison and/or have to pay a large fine.

**22** The security of the premises and computer systems will have to be increased. This will need to cover the purchase, installation and maintenance costs of the extra security.

**23** If data is lost or stolen the Information Commissioner can take action against the business. This is because the DPA states that data must be kept secure. The business may have to pay compensation to anyone whose data has been stolen.

# 4 Threats to data security and how to deal with them

## Threats to data security

**LINK TO STUDENT BOOK** pages 110–11

- 24** A computer virus spreads by infecting files on a computer or file system that is accessed by other computers.
- 25** Adware automatically shows adverts to generate revenue for the author. They are usually harmless. Spyware is malicious software usually secretly installed to collect information and data (for example usernames and passwords) without the user's knowledge.
- 26** Your answers could include:
- in a pop-up
  - in the user interface of a software package
  - on an installation screen.
- 27** When the spyware includes key loggers which enables users to be monitored.
- 28** A hacker is someone who finds the weaknesses in a computer system to gain unauthorised access.
- 29** A DoS attack usually focuses on preventing an internet site, or service, from functioning efficiently or at all, either temporarily or indefinitely.

## Actions to minimise risks

**LINK TO STUDENT BOOK** pages 111–15

- 30** Your answers could include:
- infect a computer system with spyware, pop-ups and viruses to steal personal details and identities
  - take over a computer system and use it to attack other computer systems
  - send spam and scam emails
  - create fake websites
  - hack into a network
  - use email or chat to bully, con or cheat.
- 31** The padlock symbol means that the data will be encrypted during transmission over the internet.
- 32** The emails could contain links to code which can infect the computer system. If emails are opened then any links should not be followed and the email should not be replied to.
- 33** A firewall controls what data can and cannot pass through it.

- 34** Spam is the sending of unwanted messages to a large number of email addresses. They are usually connected with unsolicited advertising.
- 35** The data is encrypted so that only users with the unlock code or secret key can read or use the data which has been transmitted.

## Automatic and manual updating facilities for operating systems and security software

**LINK TO STUDENT BOOK** pages 115–18

- 36** Your answer could include:
- the user does not have to remember to carry out the update
  - the update will automatically be carried out so the computer system is as up-to-date as possible.
- 37** Your answers could include:
- the updates can be forgotten which can leave the computer system vulnerable to threats
  - downloading the updates can take a long time
  - there may be a time delay between the update being available and the manual update
  - the computer system must be switched on and connected to the internet for the update to be downloaded.