Understanding Computer Systems

Year 11 Booklet

Name:

_____

L01: Understanding how ICT can be used to meet business needs

1:        Research the meaning of the following **Key Words**, give examples where appropriate

- Portable devices   _____

_____

- Operating systems   _____

_____

- Application software _____

_____

- Multimedia software _____

_____

- Storage devices   _____

_____

- Magnetic media   _____

_____

2:        Describe the following **portable** computer devices and state the features (i.e. word processing, voice calls, surf the internet etc.) of each.

- Laptop_____

_____

- Netbook_____

_____

- Tablet_____

_____

- Smartphone_____

_____

3:      What is an **input device?** List and describe five computer **input devices**, i.e. keyboard, touch pad, webcam, scammers etc. Include image where appropriate.

_____
_____
_____

1._____
2. _____
3. _____
4._____
5._____

4:       Match the input device that is most suitable for the tasks on the right.

Keyboard	Surfing – clicking on links, icons
Mouse	Recording a song
Microphone	Writing a letter
Scanner	'Face to face' communication
Webcam	Capturing photos for editing

5:       What is an **output device?** List and describe five computer **output devices**, i.e. printer, Monitor, speakers etc. Include image where appropriate.

_____
_____
_____

1._____
2. _____
3. _____
4._____
5._____

6:        Match the task with the most suitable output device

An output device which immediately lets you view what you have just input	Ink Jet Printer
The printer which would output pages the fastest	Speaker
The printer which would let you print carbonated copies	Monitor
The best printer if you only want to print in colour occasionally	Laser printer
The best output device for printing large posters or architect's blueprints	Dot matrix printer
The most appropriate output device for sound	Plotter

7:        Which **Application Software** is most suitable for the tasks below

Writing a letter   _____

Making calculations/creating charts and graphs   _____

Store/query and generate report   _____

Sending email/receiving email   _____

Creating publications such as leaflet, flyer etc   _____

Making presentations with images and text   _____

Editing photos   _____

Editing videos   _____

Creating vector graphics   _____

8:      Web browsers are used to surf the internet, compare the two **web browsers** below, list and explain the features, discuss any drawback (bad features) of each web browser.

	Internet Explorer 7	Google	mozilla Firefox
Name of browser:			
Security i.e. popup blocker:			
Compatibility i.e. can be used on all computer, can open all documents:			
Speed i.e. how quickly it opens a document, download a file, load a videos etc:			
Ease of use:			
Features i.e. spell check:			
Other good features			
Bad/poor features			

9:      Research the maximum storage capacity of the following **storage devices**

   - Optical discs (CD/DVD) _____

   - Magnetic media (internal and external hard disk drives) _____

   - Solid state drives _____

   - Memory cards_____

   - Network devices _____

   - Cloud storage _____

10: Sometimes an organisation finds that '**off-the-shelf**' software will not do exactly what they want. In this case they might decide to have special **tailor-made**, or bespoke software specially developed for the purpose.

a) List three advantages of '**off-the-shelf**' software

i) _____

_____

ii) _____

_____

iii) _____

_____

b) List three advantages of "**tailor made**" software.

i) _____

_____

ii) _____

_____

iii) _____

_____

11: Find three publications on the development of **computer technology** that enables people with sight or hearing disability can use. (Visit the BBC archive or www.teach-ict.com)

12: Draw a layout of an ideal ICT room, your room should include the following devices

- 20 student computers
- 1 teacher computer
- 1 colour printer
- 1 black and white printer
- 1 scanner
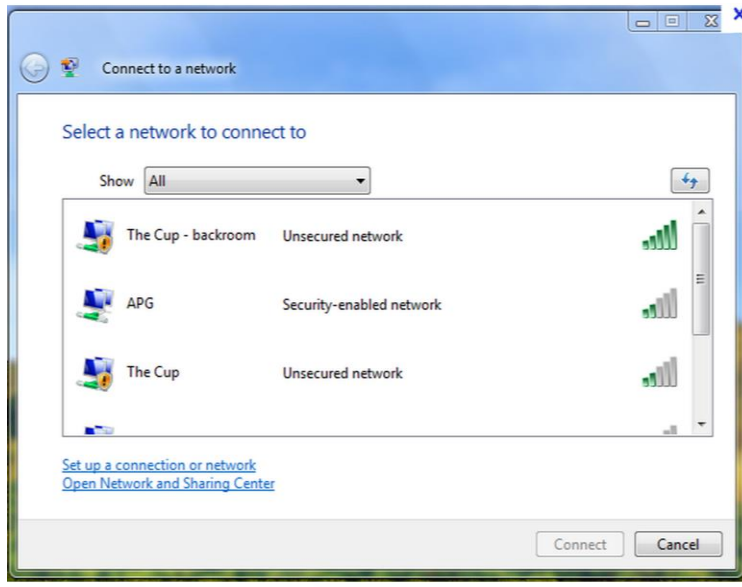- 1 interactive white board

Describe how the **peripherals** (printers, scanner) are connected to the computer devices wired method (e.g. USB Fire wire) or Wireless methods (e.g Wifi, Bluetooth, infrared), give reason for your answer.

Classroom layout

Connection description and reason

13:      **Wireless network** and **connectivity**

a) Identity the names of each wireless network above _____

_____

b) Which network required a security key?_____

c) What is the difference between public and private network?

_____
_____
_____

14: Write a clear "how to guide" on how to connect to an existing **wireless network**.

_____
_____
_____
_____
_____
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_____

15: Mrs Thompson is an ICT teacher who has to teach GCSE to students who are terminally ill either at home or in the hospital. Welling school is unsatisfactory with her progress and is planning to monitor her location to know which student she is with, the sites she visits during working hours and who she communicates with using the school's mobile phone.

    a) how will you **monitor** Mrs Thompson Location, internet use and communication

_____
_____
_____
_____
_____
_____

    b) what hardware and software would you consider to monitor the above tasks

_____
_____
_____
_____
_____
_____

16:        Key words word search

ICT in Business Keywords

```
R A P P L I C A T I O N R W Y        PORTABLE
P T N S C E T S T O R A G E W        DEVICES
Z J U Q O G G N I T A R E P O        OPERATING
I C A S N T A B V D X S M X O        APPLICATION
C I S O N C Y T P P L A M H G        SOFTWARE
I T E F E N B Y Z A Y U U D V        MULTIMEDIA
N E C T C D L H R V G T L Q P        STORAGE
T N I W T V H E W U Y F T J Z        WIRELESS
E G V A I Q H W Q S Q U I B K        MAGNETIC
R A E R V P C E U U K E M Y U        PERIPHERALS
N M D E I P T W I R E L E S S        CONNECTIVITY
E G J R T O U W T C U B D U D        NETWORK
T A E X Y I Q D R E B B I P C        INTERNET
L P G O K R O W T E N N A M S
J L U P R E L B A T R O P D D
```

17:     Research the meaning of the following **Key Words**, give examples where appropriate

``
- sensors   _____

_____

- data   _____

_____

- forms   _____

_____

- data capture _____

_____

- validation _____

_____

- database   _____

_____

- bandwidth   _____

_____

- back-up (data) _____

_____

- recovery (data) _____

_____

18:     Explain the following methods of **capturing data** (gathering letters, numbers, barcode, any written text), give at least one advantage and one disadvantage of each

- paper-based _____

_____

_____

_____

- automated data capture methods i.e. barcode reader _____

_____

_____

19:     Capturing Data - Use the words in the list below to complete the sentence

Software, automatic, written, optical, paper, scan, form

a) A **bar code reader** uses visible red light to _____ and read a barcode
b) An optical mark reader is a scanning device that reads carefully placed pencil marks on a specially designed _____ or document.
c) The _____ based method is the most commonly use method of collecting or capturing data.
d) An **Optical Character Recognition** system consist of a normal scanner and some special_____ the scanner is used to scan the text from a document into the computer.
e) The _____ character recognition is used to automatically recognise postcodes on letters at sorting offices
f) There are many methods which can be used to collect and enter data, some manual and some _____
g) A speech recognition software is also an example of automatic data entry. T he software listens to the speaker then translates the information into _____ _____ words.

20:     You are the recruitment officer at the Job Centre, on a daily basis you receive a number of online and paper based application for organisation. Use the variables below to evaluate which method is most suitable to process the information. Give reasons for your answer.

	Online application	Paper based application
	Apply Online Start the Application Process Today Start Here	Application Form
Which option is more **costly** for the business? why		
Which option is **economically friendly**? why		
Which option is easier to **use** for the applicant? Why?		
For which option is data more		

secure? Why?		
Which option allows data to be **processed quickly**? Why?		
Which is easier to **store/maintain**? Why?		

21:     Create a **questionnaire** to gather personal information about new students.   When creating this questionnaire you must consider the **audience** and **purpose**, your questionnaire must capture the following data. Use the template below.

Gender, Age, Personal details i.e. Date of Birth, Contact details, Hobbies, Future plans (careers or further education), Any other relevant information.

Questionnaire

22:        Database **design** and **Validation** - Read the BBC extract above and answer the
          following questions.

BBC NEWS

LIVE LI   BBC NEWS CHANNEL

Last Updated: Friday, 28 January, 2005, 00:36 GMT

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'Third' of DVLA car records wrong

A third of cars could be incorrectly registered in government databases, making it harder to stop vehicle crime, the public spending watchdog has said.

The National Audit Office (NAO) said recording correct addresses, postcodes and registration numbers was essential as police cameras were being used more.

The report said the DVLA records were vital to fighting crime

Its report also accuses the Driving and Vehicle and Licensing Agency (DVLA) of being slow to correct its records.

The DVLA said the NAO had used old data and many mistakes had been corrected.

Top priority

According to the report, almost 15% of addresses are wrong because drivers often don't inform the agency that they have moved.

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a) What are the **implications** of having incorrect data in a database, refer to the
    extract above?_____
    _____
    _____

b) As a database developer how can you ensure that the information in a **database** is
    correct and up-to-date? _____
    _____
    _____

c) How do you think the DVLA rectify the above problem?_____
    _____
    _____

23: Research the following questions.

a) What is data **validation**? Give examples of data validation.

b) Why is data validation important when creating a database?

24: The local zoo has created a **database** to store records about each of the animals. A copy of their main table looks like the one below
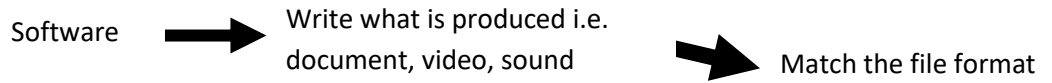
Hint: Fields - (Column heading), Records (information in an Rows)

Animal Breed	Name	Gender	Age	Food
Giant Panda	Pongo	M	8	Bamboo
Giant Panda	Bongo	F	7	Bamboo
Penguin	Pingu	M	5	Fish
Lion	Hermes	M	4	Fresh meat
Lion	Tarsa	F	4	Fresh meat
Crocodile	Spike	M	7	Fresh meat
Gorilla	Gemella	F	122	Fruit
Zebra	Stripey	M	8	Grass
Snake	Leyla	F	2	Live mice
Parrot	Robina	F	25	Nuts and seeds

a) How many **fields** are there in the zoo database? ……………………………………………............

b) How many **records** are stored in the database? ……………………………………………............

c) One of the fields has been sorted into **ascending** order. Which field is it? ………………..

d) One item of data in the database looks incorrect. Which one do you think it is?……

e) Explain your answer………………………………………………………………………………………........

f) How many animals are there in the database which are female?……………….................

g)   Give the names of the animals which eat fresh bamboo?………………………………………………

h)   Give the name of the animal which eats fresh meat and is female?………………...........

25:    The following are file format for storing data match the following **application** with the **proprietary** format. You must also write what objects or combination of objects each **software** produce.

Software ➡ Write what is produced i.e. document, video, sound ➡ Match the file format

Software	Write what is produced	Match the file format
Microsoft Word 2007		.xls
Microsoft PowerPoint 2007		_____
Microsoft Excel 2007		.docx
		_____
Adobe Flash		.pptx
		_____
Windows media player		.wma
		_____
		.fla

26: Select six of the following open file format and state what the **extension**means, state the type of date and the application that can open this document.

Open format	**Application** that can be used to open this file format	Type of data that can be stored in this file.
.pdf	e.g. PDF files are can be open in with adobe PDF. Web browsers can also open PDF files.	PDF files contain text and images.
.rtf		
.csv		
.exe		
.txt		
.mp3		
.wav		

27: Data **storage technologies**word search

```
S C L S X E B Q T F C B W H Q      DATA
W Y N E P L J Z H Z I F K R J      STORAGE
G H I I N B U A L N R W Q E P      TECHNOLOGIES
O A U G B A L A X D F S Z G I      LOCAL
X N X O A V C T A H W I D A M      MEDIA
Z W E L N O O I E U Y T U R P      REMOVABLE
Q X T O L M D M W P C C I O U      REMOTE
W M I N A E S N I E Y B K T E      OFFSITE
H C S H M R G C T U Q J Y S R      LOCATION
P L F C H K S O M Q R D A T A      CLOUD
B O F E L Z M D Q G Z Q F D S
P U O T P E L X U O W I Q U Y
U D J I R L J J B V Z O X L C
N U C F X Q M C J Y I R F Z Z
N O I T A C O L U O T C C Q C
```

28:          Security measures when storing data – complete the table below stating how to protect others from accessing password, password and access to your user area either at home or at school.

	How to protect it	Risk of unauthorised access/usage
Password		
Username		
Access to documents in your user area		

29:          Data transferring technologies - describe the following method of transferring data for each method List three advantages and three disadvantages.

- Email

_____
_____
_____

- Mobile transmission (sms)

_____
_____
_____

- Peer –to –peer file sharing

_____
_____
_____

30:        Methods of **transferring** data - fill in the blanks below from the list above.

Wired and wireless method	Mobile data transmission i.e. 3g , 4g	peer to peer file sharing	email,	Use of data encryption

a) This method is most suitable for transferring a large amount data

   _____.

b) _____provides the quickest method of f transferring data.

c) This method of transferring data is future proof _____.

d) _____ allows data to be transferred **securely**.

e) _____allows the user to access data on demand/on the go.

31:        Design a backup and recovery guidancefor the welling school. Your guidance should include the following. You guidance should consider the following factors: **cost,ease of use, data security.**

when to backup

how to backup

data storage media for backing up data

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
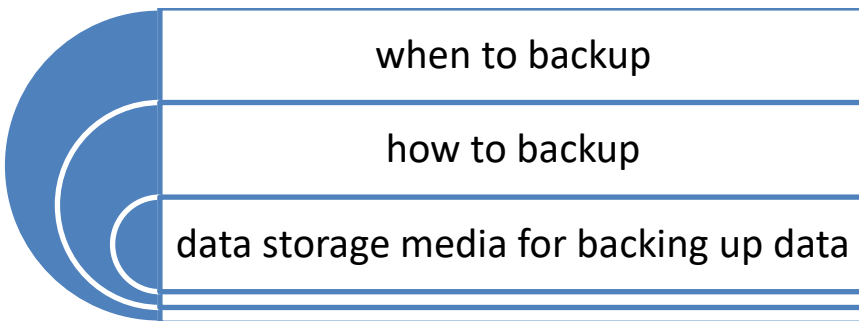
Keywords

```
Y L V F B A N D W I D T H P X
A E S A B A T A D Y N L Z U S
T F A E N B P W O T Y V A T F
A J U T N V P Y P F X H Z R P
D I T T S S U I E G V C C A L
F D O K U G O E H A P C Q N C
T B M R B R J R L D S Y O S E
Y H A Y Z X E I S P T G V F R
T M T U X C D P W R A F S E U
I N E G G A S Y R C M I C R T
R S D K T S Z L A O R D J R P
U P E I M S Q I J E O M O I A
C F O R G E E T J I F F O N C
E N O U P U K C A B R U M G W
S F E T R E C O V E R Y D J N
```

SENSORS
DATA
FORMS
CAPTURE
VALIDATION
DATABASE
BANDWIDTH
TRANSFERRING
SECURITY
FORMATS
FUTUREPROOF
AUTOMATED
BACKUP
RECOVERY

33:     Explain the following method of **communication** in **businesses** for each, give an advantage and a disadvantage

Communication method	Description	Benefits	Drawbacks
Email			
Chat room			
Forums			
Bulletin Boards			
Voice over IP (VoIP)			
Video conferencing			
Webcam			
Blogs			
Social networking			

34:        Identify the following section of an email and say why each is important

Subject:
Attachment:
Bcc:
Cc:

35:        Compare the following electronic and paper based diary. Include the following in your comparison. **Ease of use**, storage, finding information, organisation,

Paper based diary	Electronic diary

36:   How can documents be created and edited **collaboratively**. Describe the following method of sharing documents.

- Network shared area (e.g. read/write access like the W drive)

  _____

  _____

  _____

  _____

  _____

- **Cloud** based services (e.g. open or restricted access to files)

  _____

  _____

  _____

  _____

  _____

37:   Know how ICT can be used to support **business** working practices word search.

Business working practices Keywords

```
Q  N  F  C  X  K  I  M  P  S  K  R  D  U  V        BUSINESS
T  A  S  L  X  Q  O  R  G  A  N  I  S  E  O        EMPLOYEES
S  W  B  O  E  H  W  R  Q  D  N  K  G  S  L        MESSAGING
Z  R  M  U  Q  U  X  P  E  X  N  T  N  E  O        WEBCAMS
F  T  T  D  S  A  H  T  M  Y  N  Q  I  E  L        MANAGEMENT
V  W  M  N  Y  I  C  V  L  E  Y  S  G  Y  B        ORGANISE
T  Q  M  X  V  I  N  O  M  S  A  T  A  O  X        LOCATION
T  F  K  Y  R  N  C  E  M  W  Q  N  S  L  T        CLOUD
U  R  B  T  F  A  G  A  S  L  C  E  S  P  R        RESTRICTED
H  D  S  M  T  A  C  B  R  S  C  M  E  M  A        DOCUMENTS
F  E  N  I  N  B  H  B  R  G  E  M  M  E  C        COMMENTS
R  W  O  A  E  Y  C  B  U  W  Y  O  N  J  K        TRACKING
U  N  M  W  G  I  U  Q  G  A  O  C  I  P  I        REJECTING
H  W  Z  R  E  J  E  C  T  I  N  G  C  V  N
M  Z  D  O  C  U  M  E  N  T  S  I  I  Q  G
```
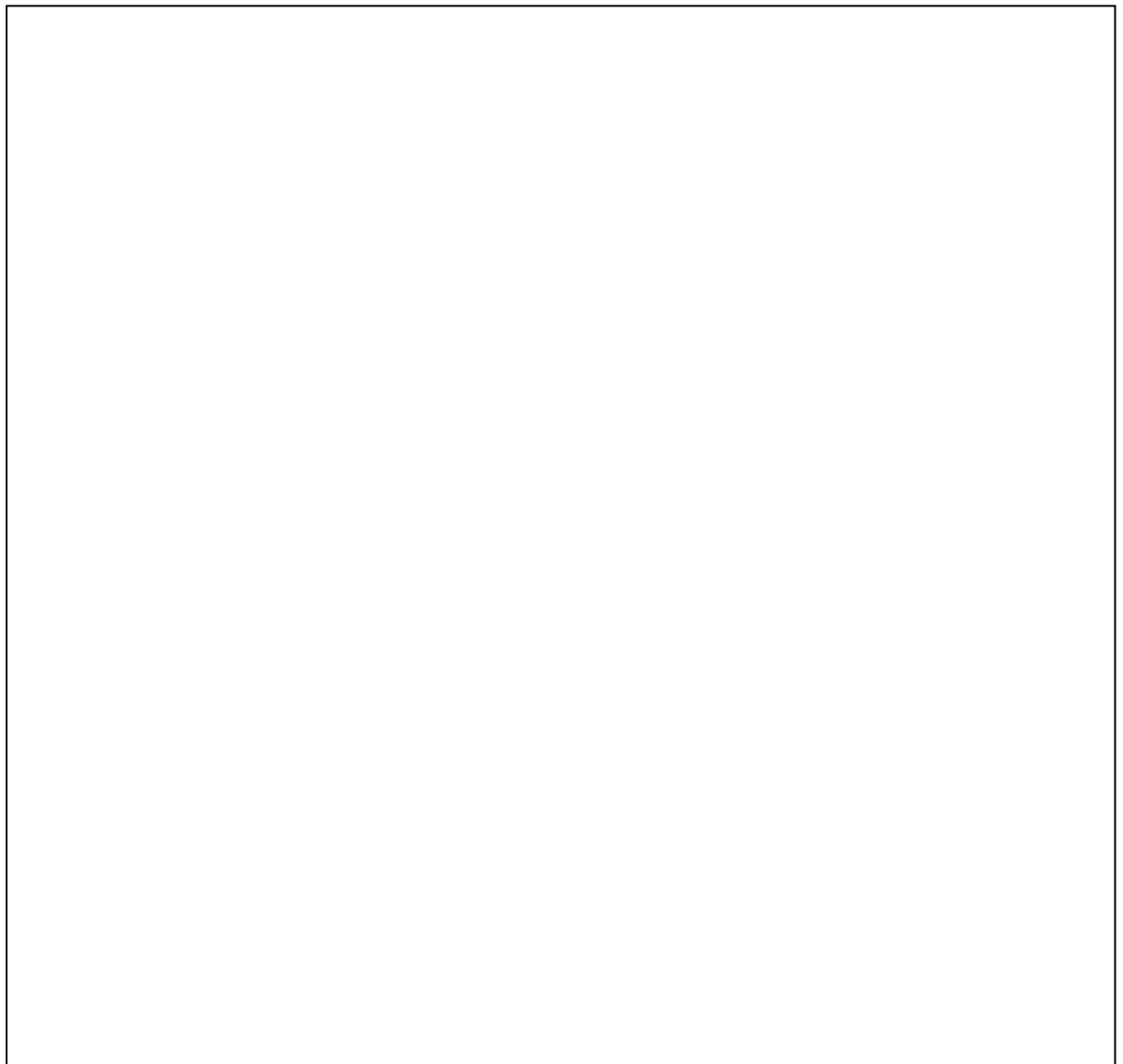
38:     Give a brief description of the following **legislation** and state how each can affect business computer users.

- Health and safety _____

- Data protection _____

- Copyright _____

- Computer misuse _____

39:     Create a poster to provide information to computer users about **cyber bullying**. Your poster should include the following

What is cyber bullying, How it can affect people, How to prevent cyber bullying, Relevant images, charts, quotes, statistics etc

40: It is considered unethical for organisation to monitor their employees without their knowledge. Give an example of then the following monitoring/tracking techniques should be used.

	Organisation type/ example	Why monitor
Key logging	e.g. Prisons	e.g.Unauthorised possession of keys may lead to the freedom of prisoners
Worker call monitoring		
Electronic consumer surveillance		
Mobile phone triangulation		
Worker call recording		
Cookie monitoring		

41: Below are **threats** to the **security** of data, you must explain the impact of each threat and what can be done to remove them

Threats	Impact of the treat	Action to remove threat
Computer virus		
Phishing		
Spyware		
Adware		
Hacking		
Physical treats (loss or theft of devices)		

42:    The **implication** and **consequences** data loss, corruption and theft. Read the article above then answer the questions below.

LIVE BBC NEWS CHANNEL

Page last updated at 05:58 GMT, Thursday, 24 April 2008 06:5

E-mail this to a friend   Printable version

Call for bank action on ID theft

Financial services companies need to do more to stem the rise in identity fraud, the Financial Services Authority (FSA) has said.

Companies underestimate the risk of data loss and fraud to their businesses, especially their customers, it said.

HSBC lost a disc of data and the FSA says firms need to do more

The survey follows a string of high-profile security breaches.

Nearly half of the 39 companies interviewed in a survey offered staff no data security training.

Medium-sized and small firms were the worst offenders, it found, and one unnamed firm has been referred to the FSA's enforcement unit as a result of data security failings.

They showed a "lack of awareness that customer data is a valuable commodity for criminals," it said.

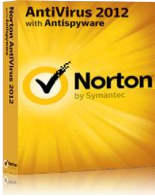"As a consequence, systems and controls are often weak and sometimes absent," it said.

"It is worrying that despite increased public awareness of the impact that identity theft can have on customers, many firms are still not taking the risk seriously," said Philip Robinson, the FSA's director of financial crime and intelligence.

a) What is the impact on the bank? i.e. (cost of resolving the problem, lose customers)

_____

b) How does this affect customers? i.e. (reduce confidence in the bank)_____

c) What is the impact on the employees of the bank? i.e. (disciplinary action for not following company procedure)_____

d) What are some of the ways to reduce identity theft?_____

43:     The use of **protection software** such as anti-virus, anti-spam etc. Research and compare
        three protection software brands using the criteria below.

	Norton	(Protection software 2)	(Protection software 3)
Ease of use (scanning, fixing and understanding security risks)			
Effectiveness – how well does it protect your computer			
Features - anti-virus, anti-work, anti-spyware etc			
Compatibility - can it be used on all operating system.			
Help and support – phone support, chat support, email support			

44: Automatic update - Look at the image below then answer the question that follows
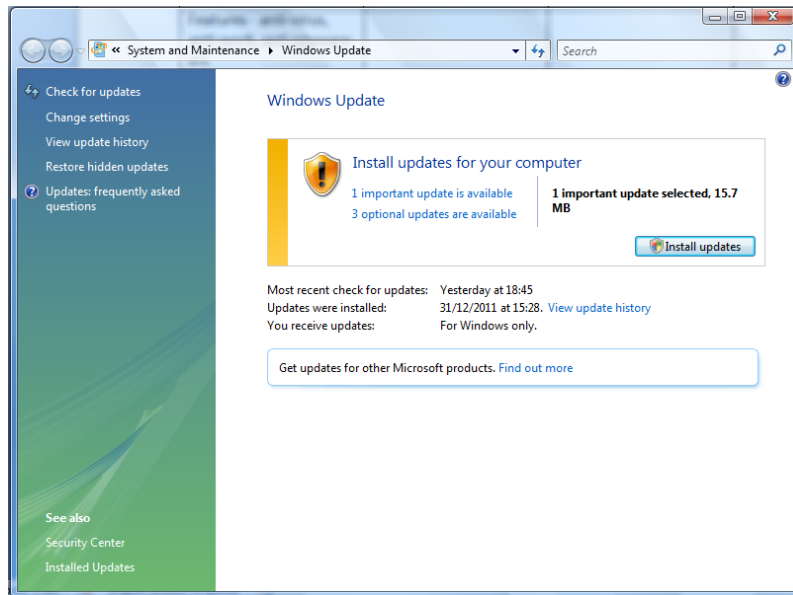
a) What is the purpose of the message? And Why is it important?

_____

_____

_____

b) What are the consequences of ignoring messages such as the one above

_____

_____

45: Understand how legal, ethical, safety and security issues affect how computers should be used.

legal and ethical issues Keywords

```
U  P  R  O  T  E  C  T  I  O  N  A  B  N  N        LEGAL            MISUSE
M  U  V  S  N  D  E  G  U  T  G  X  Y  M  O        ETHICAL          ELECTRONIC
O  T  M  N  L  S  A  F  E  T  Y  S  O  S  I        SAFETY
R  A  I  O  A  S  A  G  G  S  I  U  G  P  T        CYBER
A  E  S  I  G  U  I  C  C  N  C  R  L  Y  A        PROTECTION
L  R  U  T  E  T  H  I  C  A  L  V  I  W  L        MONITORING
V  H  S  A  L  N  J  P  O  I  K  E  K  A  U        MORAL
C  T  E  C  P  L  L  A  W  E  R  I  F  R  G        COOKIE
M  O  N  I  T  O  R  I  N  G  H  L  Q  E  N        SURVEILLANCE
W  R  C  L  R  E  B  Y  C  U  L  L  A  N  A        IMPLICATIONS
V  K  B  P  I  N  H  O  O  X  T  A  T  W  I        VIRUS
O  N  V  M  P  B  O  E  V  N  I  N  X  E  R        SPYWARE
S  U  R  I  V  K  M  E  G  N  E  C  Q  T  T        FIREWALL
S  F  L  C  I  J  Z  R  X  W  S  E  N  O  D        THREAT
U  O  P  E  L  E  C  T  R  O  N  I  C  M  B        TRIANGULATION
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