

Surname		Other Names	
Centre Number			Candidate Number
Candidate Signature			

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General Certificate of Secondary Education
June 2003



**INFORMATION AND COMMUNICATION TECHNOLOGY
(SPECIFICATION B)
(FULL COURSE)
FOUNDATION TIER**

3522/F

Friday 20 June 2003 1.30 pm to 3.00 pm

F

For Examiner's Use	
Number	Mark
1	
2	
3	
4	
5	
6	
7	
8	
TOTAL	
Examiner's Initials	

<p>No additional materials are required. You may use a calculator.</p>

Time allowed: 1 hour 30 minutes

Instructions.

- Use a blue or black ink or ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** the questions in the spaces provided.

Information

- The maximum mark for this paper is 120.
- Mark allocations are shown in brackets.

Answer **all** questions in the spaces provided

- 1 An Asian restaurant uses a spreadsheet to record sales.
This is part of the spreadsheet.

	A	B	C	D
1	Meal	Price	Quantity Sold	Takings
2	Meat Bhuna	£4.50	2	£9.00
3	Chicken Tandoori	£5.00	5	£25.00
4	Lamb Balti	£6.50	3	£19.50
5	Vegetable Curry	£3.25	4	£13.00
6				
7			Total Takings =	£66.50

- (a) (i) Write down the number of rows of the spreadsheet shown.

.....

(1 mark)

- (ii) Write down the number of columns of the spreadsheet shown.

.....

(1 mark)

- (b) (i) The cells in the spreadsheet contain different types of information.
For example, cell A3 contains text.
Using words from the list, complete the sentences below.

formula
model
menu
number
date

Cell C4 contains a

Cell D3 contains a

(2 marks)

- (ii) Tick **one** box to show the format of cell B2.

	Tick one box
currency	
number	
general	
percentage	
time	

(1 mark)

- (c) (i) Write down the formula in cell D4.

.....
(1 mark)

- (ii) Tick **two** boxes to show the formulae that could be in cell D7.

	Tick two boxes
AVERAGE(D2:D5)	
D2+D3+D4+D5	
D1+D2+D3+D4+D5	
SUM(B2:B5)	
B3*C3	
SUM(D2:D5)	

(2 marks)

- (d) The price of Vegetable Curry is increased to £4.00.

- (i) Identify the **one** cell which must be edited.

.....
(1 mark)

- (ii) When the cell has been edited, the values in two other cells change automatically. Identify the **two** cells which change automatically.

Cell 1:

Cell 2:

(2 marks)

QUESTION 1 CONTINUES ON THE NEXT PAGE

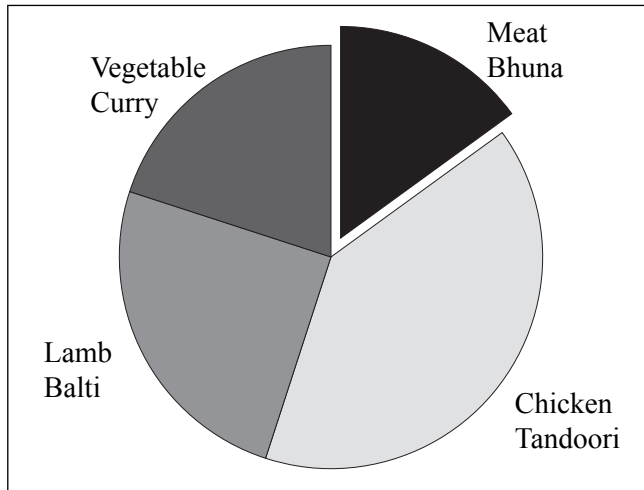
Turn over ►

- (e) A spreadsheet can generate different types of graph.
Using words from the list, for each of the following, write down the type of graph shown.

pie
scatter
bar (or column)
line
radar
doughnut

(i)

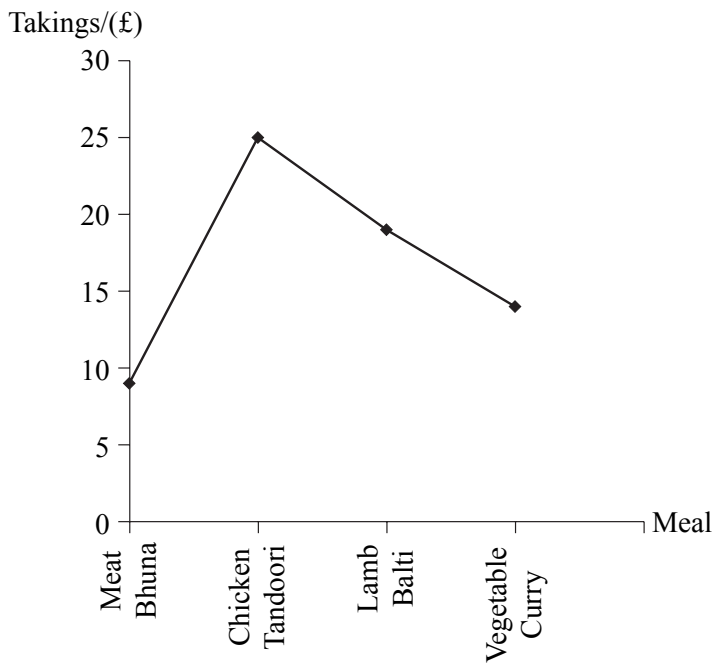
Takings for meals



Type of graph.....

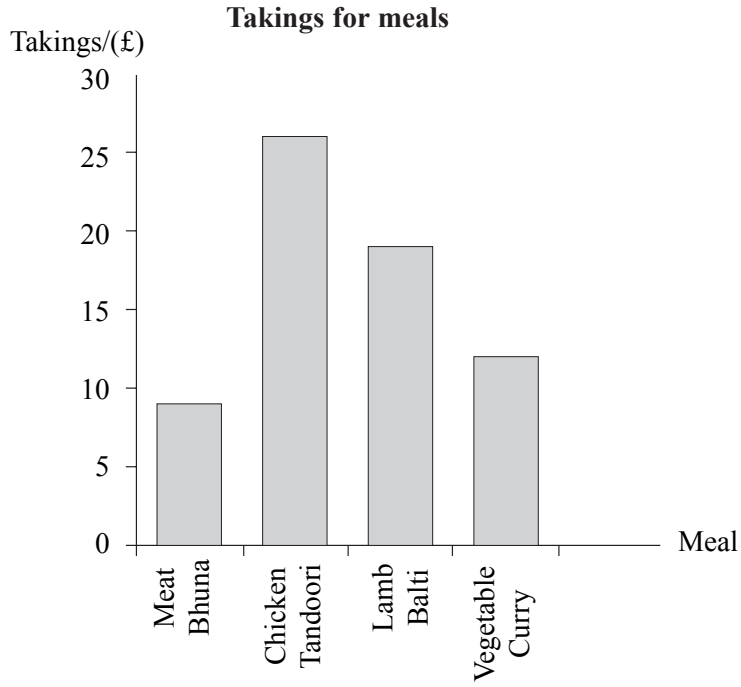
(ii)

Takings for meals



Type of graph.....

(iii)



Type of graph..... (3 marks)

(f) Write down the type of graph that **should** be used to illustrate the *Takings for meals*.

.....

Explain why this type of graph should be used.

.....

.....

(1 mark)

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TURN OVER FOR THE NEXT QUESTION

Turn over ▶

- 2 The NANOTEX manufacturing company keeps personal information about its employees on a database on a computer.
This is part of the database.

Employee Number	Name	Job Title	Weekly Wage (£)
09834	Jones	Fitter	250
01834	Hood	Packer	200
08374	Habib	Packer	200
19774	Clarke	Supervisor	5000
03452	Cook	Electrician	250
18973	Casey	Packer	200

- (a) (i) Write down the name of the *key field*.

.....
(1 mark)

- (ii) Describe **two** other fields that NANOTEX might include in an employee's record.

Field 1:

.....

Field 2:

.....
(2 marks)

- (b) (i) Circle the **Weekly Wage** that is probably incorrect. (1 mark)

- (ii) Tick **one** box to show the type of validation check the computer could use to detect this error.

	Tick one box
type check	
data check	
wage check	
range check	
file check	

(1 mark)

- (iii) Tick **one** box to show a validation check the computer could use to detect this error.

	Tick one box
$0 < \text{Weekly Wage} < 600$	
$0 < \text{Weekly Wage}$	
$-50 > \text{Weekly Wage} < 600$	
$\text{Weekly Wage} > 6000$	
$\text{Weekly Wage} = 500$	

(1 mark)

- (c) (i) Write down the **name(s)** of the employee(s) whose record(s) are selected using this search condition.

Search condition: **Job Title** is Fitter

Records selected:

(1 mark)

- (ii) Write down the **name(s)** of the employee(s) whose record(s) are selected using this search condition.

Search condition: **Name** begins with C AND **Job Title** is Packer

Records selected:

(1 mark)

- (iii) Write down the **name(s)** of the employee(s) whose record(s) are selected using this search condition.

Search condition: **Employee Number** begins with 1 OR **Job Title** is Packer

Records selected:

(1 mark)

- (iv) Write down the **name(s)** of the employee(s) whose record(s) are selected using this search condition.

* is a wild card.

Search condition: **Name** is H*

Records selected:

(1 mark)

QUESTION 2 CONTINUES ON THE NEXT PAGE

Turn over ►

(d) NANOTEX collects information about its employees which is input to a computer.

(i) The **Job Title** is coded using this code.

Job Title	Code
Electrician	EL
Fitter	FI
Packer	PA
Supervisor	SU

Give **two** reasons why this is a suitable code.

Reason 1:

Reason 2:

(2 marks)

(ii) NANOTEX collects information about its employees using an Optical Mark Recognition (OMR) form.

The OMR form is input to the computer.

Design the section of the OMR form used to collect information about an employee's **Job Title**.

(2 marks)

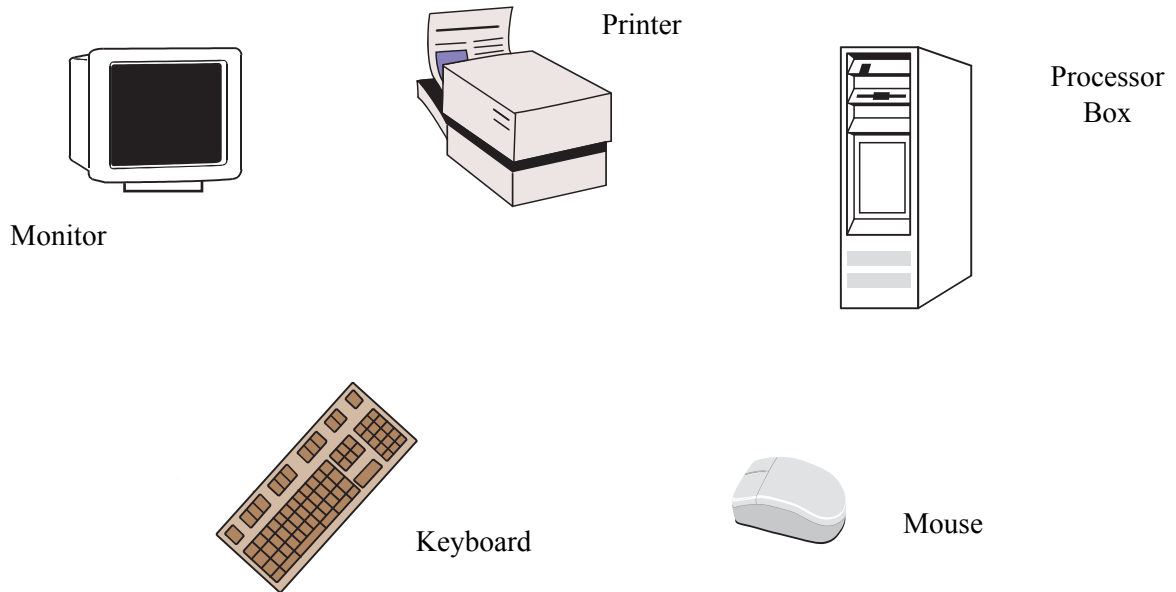
(iii) Give **one** reason why it is better to use an OMR form to input information to a computer than to type it in using a keyboard.

.....

(1 mark)

3 (a) A school technician is setting up a new computer system that has just been delivered.

(i) The computer system has these component parts.



Cables are used to connect the parts when the computer system is set up.
Draw lines on the diagram to show the cables that connect the parts. (2 marks)

(ii) Write down the name of the **one** part that contains the computer's hard disk.

.....
(1 mark)

(iii) Name the **two** parts of the computer system that are used to input information.

Part 1:

Part 2:

(2 marks)

(iv) Tick **three** boxes to show other hardware that can be used to input information.

	Tick three boxes
touch screen	<input type="checkbox"/>
speakers	<input type="checkbox"/>
Random Access Memory (RAM)	<input type="checkbox"/>
wordprocessor	<input type="checkbox"/>
digital camera	<input type="checkbox"/>
scanner	<input type="checkbox"/>

(3 marks)

Turn over ▶

- (b) The computer is connected to a Local Area Network (LAN).

Tick **one** box to show what **must** be installed in the Processor Box so that the computer can be connected to a LAN.

	Tick one box
a printer server	
a network card	
a graphics card	
a sound card	
a CD-ROM drive	

(1 mark)

- (c) The computer can access different types of file.
For **each** filename, tick **one** box to show the type of file.

Filename	Web file	Text file	Graphics file
index.htm			

Filename	Web file	Text file	Graphics file
castle.jpg			

Filename	Web file	Text file	Graphics file
letter.txt			

(3 marks)

- (d) The computer will be used in school to access a distance learning course on the Web.
The course is for GCSE English.

Tick **three** boxes to show the software that **must** be installed on the computer.

	Tick three boxes
spreadsheet	
web browser	
logo	
email	
text book	
operating system	

(3 marks)

4 A weather station is located next to a country road on the edge of a large city.

- (a) The weather station has a sensor which is used to record the temperature. The temperature is only recorded at midday every day. The council uses this temperature to predict when the roads will be icy so that it can grit them. The council finds the roads are often not icy when it predicts they will be, and it wastes grit.

Tick **three** boxes to show how the council could improve the accuracy of the prediction that the roads will be icy.

	Tick three boxes
Record the temperature more frequently.	
Record the temperature using a different kind of temperature sensor.	
Record the temperature during the day and at night.	
Record the temperature every week instead of every day.	
Record the temperature using weather stations in a variety of different locations.	
Only record the temperature in the centre of the city.	

(3 marks)

- (b) Tick **three** boxes to show other sensors that the weather station might have.

	Tick three boxes
tilt	
density	
wind direction	
touch	
light	
rainfall	

The weather station photograph is not reproduced here due to third-party copyright constraints. The full copy of this paper can be obtained by ordering 3552F from AQA Publications Tel: 0161 953 1170

(3 marks)

- (c) A person used to visit the weather station to collect the information recorded. The weather station is now connected to the council's computer. The council's computer collects the information recorded.

- (i) State **two** advantages of using the council's computer instead of a person to collect the information recorded.

Advantage 1:

.....

Advantage 2:

.....

(2 marks)

(ii) State **two** disadvantages of using the council’s computer instead of a person to collect the information recorded.

Disadvantage 1:

.....

Disadvantage 2:

.....

(2 marks)

(d) A closed circuit television camera (CCTV) is mounted on the weather station.

Tick **two** boxes to show why a CCTV camera is used.

	Tick two boxes
The CCTV camera shows what the weather is like.	
The CCTV camera shows if cars are speeding.	
The CCTV camera shows if drivers are affected by icy roads.	
The CCTV camera is connected to a missile defence system.	
The CCTV camera records the temperature throughout the day.	

(2 marks)

(e) There are CCTV cameras in other places.

The CCTV cameras send pictures to a control centre.

Some people are concerned about the widespread use of CCTV cameras.

Explain why people might be concerned about the widespread use of CCTV cameras.

.....

.....

.....

.....

.....

.....

(3 marks)

TURN OVER FOR THE NEXT QUESTION

5 VideoNow is a video rental shop.

(a) VideoNow is going to install a new ICT system.

These are some of the tasks VideoNow is going to do.

Label	Task
A	Produce instructions that tell users how to operate the ICT system
B	Purchase the hardware and software to be used
C	Check that the ICT system works
D	Produce a flowchart of the new ICT system
E	Train users to operate the new ICT system

Write down the label of the task which is a part of systems design.

.....

Write down the label of the task that is a part of writing documentation.

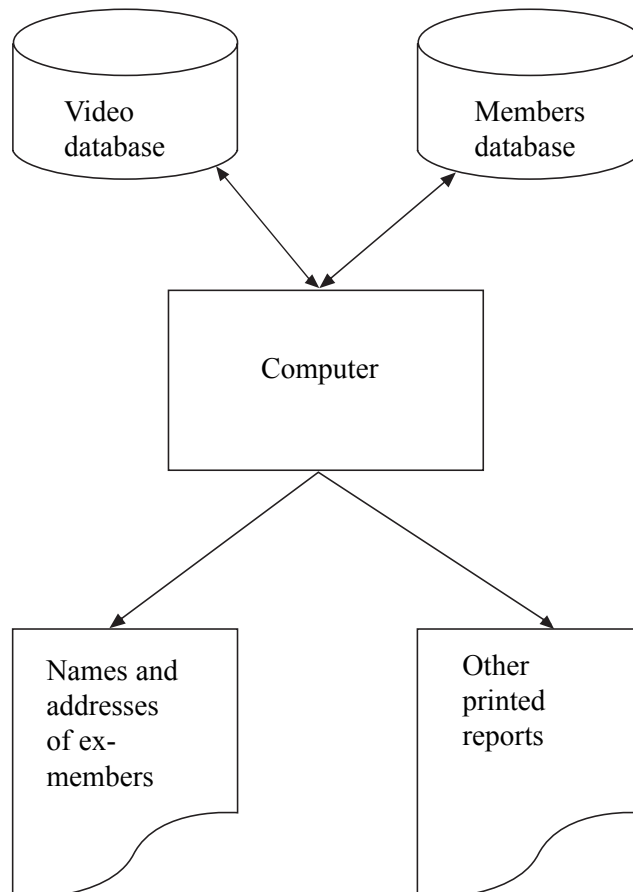
.....

Write down the label of the task that is a part of testing.

.....

(3 marks)

(b) This is a diagram of the new ICT system.



- (i) Tick **three** boxes to show the lists that the new ICT system could be expected to print.

	Tick three boxes
A list of current members	
A list showing the bank balance of each member	
A list of all the videos that are in stock	
A list showing what type of house each member lives in	
A list of the videos each member has borrowed	
A list of all the videos rented from another video rental shop	

(3 marks)

- (ii) VideoNow prints a list of the names and addresses of ex-members. VideoNow is going to send ex-members a letter to encourage them to visit the shop again. A member of staff writes the names and addresses onto the letters. Describe a better method of doing this using a wordprocessor.

.....

.....

.....

.....

.....

.....

.....

(3 marks)

QUESTION 5 CONTINUES ON THE NEXT PAGE

Turn over ►

- (c) (i) This is part of the user documentation for the new ICT system.
This is not good user documentation.

If you don't see the Database Wizard on the Data menu it may not be installed. You will need to install the add-in. Click the Tools menu, click Add-Ins, click to select the Database Wizard check box, click OK, and then click Yes to install the Database Wizard. Click Next to continue, and Click Finish to end. Data in existing databases can be added to the Database Wizard's database. Before including data, make sure the location of the fields in the existing database matches the locations of the cells selected as data fields. Click Yes, Include option if you want to add information from existing databases, or click the No, Skip option if you don't want to add any data.

Tick **three** boxes to show why this is **not** good user documentation.

	Tick three boxes
The user documentation is left justified.	
The font is too small.	
The user documentation is not in simple English.	
The user documentation does not relate to how the ICT system is used in VideoNow's business.	
The user documentation is in one column.	
The user documentation has a frame around it.	

(3 marks)

- (ii) Documentation can be made available on a CD-ROM.
State **three other** ways documentation is made available.

Way 1:

.....

Way 2:

.....

Way 3:

.....

(3 marks)

6 ConLev installs and maintains computer-controlled central heating systems. The computer can turn a heater on or turn it off.

(a) Describe what the computer should do if the temperature is too high.

.....
.....

(1 mark)

(b) A ConLev engineer sets up the computer that controls the central heating system.

(i) The engineer writes a control program to make the computer keep the temperature at 19 °C.

Complete the program by writing an instruction on line 5.

Line 1:	LEVEL = 19
Line 2:	REPEAT LINES 3 TO 5 UNTIL INTERRUPTED
Line 3:	INPUT THE TEMPERATURE
Line 4:	IF TEMPERATURE IS LESS THAN LEVEL THEN TURN HEATER ON
Line 5:

(3 marks)

(ii) The engineer wants to keep the temperature at 20 °C.

Write down the number of the line that must be changed.

.....

Write down the new instruction.

.....

(2 marks)

(c) The engineer wants to take the control program back to ConLev’s offices.

Using a word from the list, complete the sentence to show how the engineer can do this.

- saves
- deletes
- renames
- formats
- windows

The engineer the control program onto a floppy disk and takes it to ConLev’s offices. (1 mark)

Turn over ►

(d) Gregory House is a large building.
The owner of Gregory House contracts ConLev to install and maintain a computer-controlled central heating system.
A ConLev engineer installs and maintains the computer-controlled central heating system.

(i) Describe **one** advantage to the owner of Gregory House because the engineer is employed by the contractor, ConLev.

.....
.....
(1 mark)

(ii) Describe **one** disadvantage to the owner of Gregory House because the engineer is employed by the contractor, ConLev.

.....
.....
(1 mark)

(e) The computer controlled central heating system has these features:

Label	Features
A	the software and hardware are easy to maintain
B	the appearance of the hardware is designer styled
C	the software and hardware are reliable
D	the software and hardware are protected from damage by hackers and vandals
E	the software plays a tune when the computer is switched on
F	the software has not been tested

Write down the labels of the **three** features ConLev would want the most.

.....
.....
.....

(3 marks)

- (f) (i) Describe **two** advantages to the owner of Gregory House because a computer is used to control the central heating system.

Advantage 1:

.....

Advantage 2:

.....

(2 marks)

- (ii) Describe **one** disadvantage to the owner of Gregory House because a computer is used to control the central heating system.

.....

.....

(1 mark)

15

TURN OVER FOR THE NEXT QUESTION

Turn over ▶

7 A WebCam is a small video camera connected to the Web.
Any computer connected to the Web can display live video pictures as they are taken by a WebCam.

(a) Tick **three** boxes to show what can be done using a WebCam.

	Tick three boxes
A baby asleep in an upstairs bedroom can be watched by its parents downstairs.	
People in the UK can watch the Prime Minister all day every day.	
Pupils in a science lesson can look at close-ups of the inside of the Sun.	
People all over the world can watch the space shuttle taking off as it happens.	
People can watch the evolution of alien life forms in other galaxies.	
Pupils in a geography lesson can watch a volcano erupting at the other side of the world.	

(3 marks)

(b) (i) Give **two** advantages of using a WebCam.

Advantage 1:

.....

Advantage 2:

.....

(2 marks)

(ii) Give **two** disadvantages of using a WebCam.

Disadvantage 1:

.....

Disadvantage 2:

.....

(2 marks)

(c) (i) Viruses are a security threat when a computer is connected to the Internet.

Describe how a virus could be downloaded from the Internet.

.....

.....

Describe how you could prevent this.

.....

.....

(2 marks)

(ii) Describe **one other** security threat when a computer is connected to the Internet.

.....
.....

Describe how you could prevent this.

.....
.....

(2 marks)

(d) Describe **four** ways to prevent the theft or damage of hardware.

Way 1:.....
.....

Way 2:.....
.....

Way 3:.....
.....

Way 4:.....
.....

(4 marks)

15

TURN OVER FOR THE NEXT QUESTION

Turn over ▶

- 8 (a) An Internet bank provides customers with bank accounts that can be accessed using the Internet. An Internet bank may have no branches in the High Street. Customers can withdraw money using cashpoints or Automated Teller Machines (ATMs).

- (i) Give **two** advantages to a customer of using an Internet bank.

Advantage 1:

.....

Advantage 2:

.....

(2 marks)

- (ii) Give **two** disadvantages to a customer of using an Internet bank.

Disadvantage 1:

.....

Disadvantage 2:

.....

(2 marks)

- (b) Customers can buy books and CDs at on-line shops using the Internet. When customers buy a book or a CD, it is delivered by post.

- (i) Give **three** advantages to a customer of on-line shopping.

Advantage 1:

.....

Advantage 2:

.....

Advantage 3:

.....

(3 marks)

- (ii) Give **two** disadvantages to a customer of on-line shopping.

Disadvantage 1:

.....

Disadvantage 2:

.....

(2 marks)

(c) Internet banks and on-line shops collect personal information about their customers. They know where their customers live and what they buy. Sometimes they give this personal information to other companies.

(i) Give **two** advantages to a customer because Internet banks, on-line shops and other companies know this personal information.

Advantage 1:
.....

Advantage 2:
.....

(2 marks)

(ii) Give **two** disadvantages to a customer because Internet banks, on-line shops and other companies know this personal information.

Disadvantage 1:
.....

Disadvantage 2:
.....

(2 marks)

(d) Describe **two** principles of data protection that protect customers from companies misusing their personal information.

Principle 1:
.....

Principle 2:
.....

(2 marks)

END OF QUESTIONS