Q1. *Obesity* is a factor that affects Coronary Heart Disease (CHD).

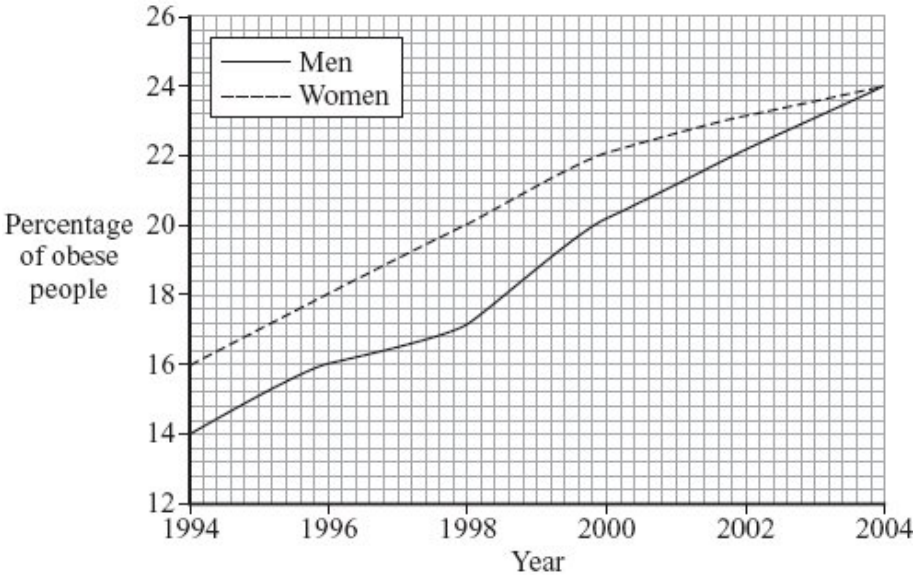
(a) What is meant by *obesity*?

.....

.....

(1)

(b) The graph shows how the percentages of obese men and women in the UK changed between 1994 and 2004.



(i) Describe how the percentage of obese women changed between 1994 and 2004.

.....

.....

.....

.....

(2)

(ii) The percentage of obese men changed between 1994 and 2004.

Suggest **two** reasons for this change.

1. .....

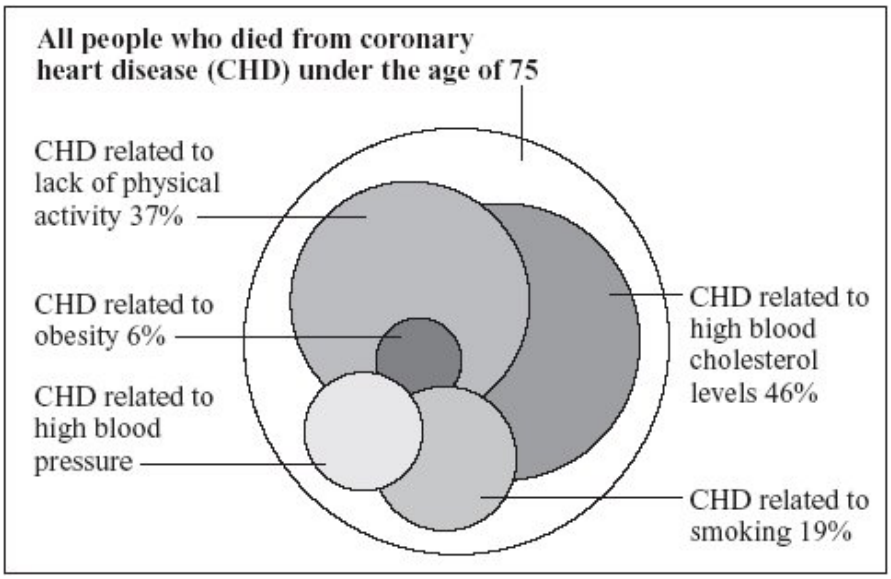
.....

2. .....

.....

(2)

(c) The chart below is published by the British Heart Foundation. It shows how death from CHD is related to a number of different factors.



copyright National Heart Forum

Each factor is represented by a circle.

The bigger the circle, the more people are affected by the factor.

(i) What is the main factor causing death from CHD?

.....

(1)

(ii) Estimate the percentage of deaths from CHD related to high blood pressure.

..... %

(1)

(iii) The data are shown as overlapping circles instead of a bar chart. The percentages of deaths related to the different factors add up to more than 100%.

What does this tell you about some of the people who died from CHD?

.....

.....

(1)
(Total 8 marks)

Q2. Obesity is linked to several diseases.

(a) Name **two** diseases linked to obesity.

1 .....

2 .....

(2)

(b) Scientists trialled a new slimming drug.

The table shows their results after one year.

Percentage change in mass of each volunteer	Number of volunteers
gained mass or lost 0 to 3.9 %	1900
lost 4.0 to 4.9 %	1100
lost 5.0 to 9.9 %	1500
lost 10 % or more	1500

(i) Calculate the proportion of the volunteers who lost 10 % or more of their mass.

You should first calculate the total number of volunteers, then work out the proportion.

.....

.....

Proportion of volunteers = ...

(2)

(ii) The National Health Service (NHS) gave permission for the drug to be used.

Use information from the table to suggest a reason why the NHS gave permission for the drug to be used.

.....

.....

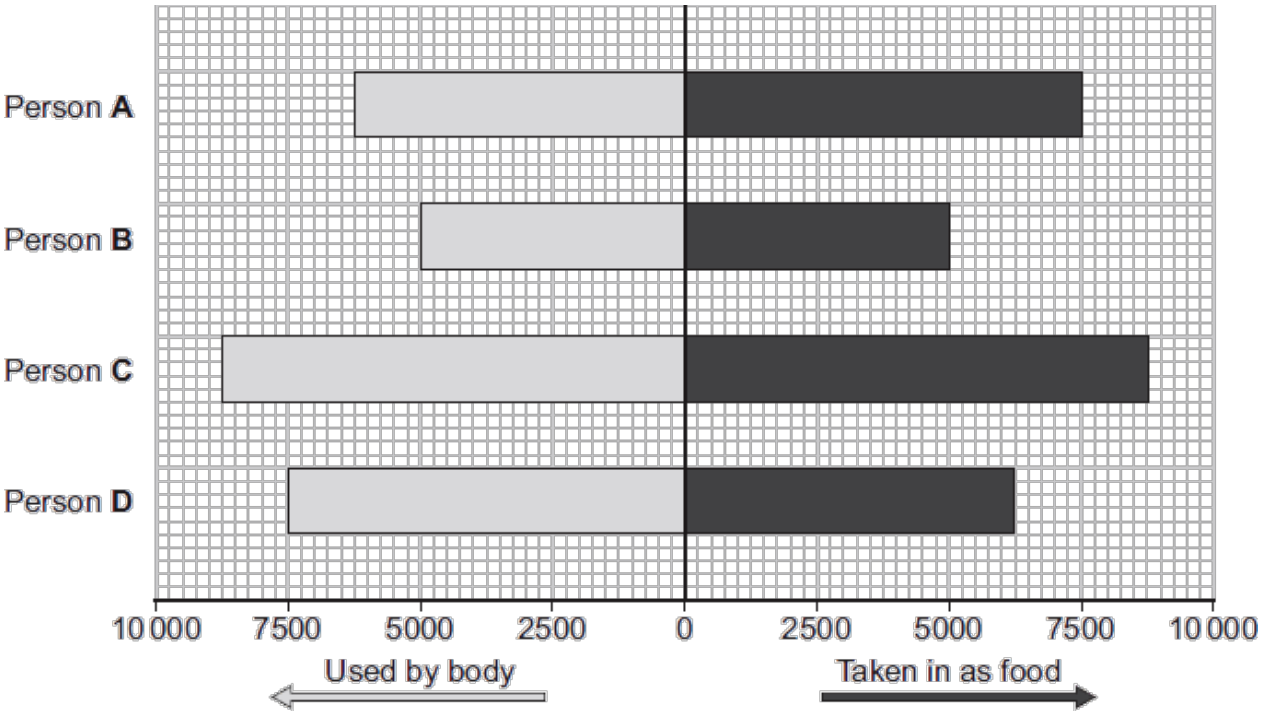
(1)

(Total 5 marks)

Q3. Scientists measured the amount of energy used by four people, **A**, **B**, **C** and **D**.

The scientists also measured the amount of energy taken in as food by each person.

The chart shows the scientists' results.



Mean energy in kJ per day

(a) (i) What was the mean amount of energy used by **D**?

..... kJ per day

(1)

(ii) The amount of energy used by **D** is different from the amounts of energy used by **A**, **B** and **C**.

Suggest **two** reasons why.

.....

.....

.....

.....

(2)

(b) The data in the bar chart was collected over twelve months.

Which person, **A**, **B**, **C** or **D**, would gain body mass over the twelve months?

Give a reason for your answer.

.....

.....

.....

.....

(2)

(c) In the UK many people are obese.
Doctors advise obese people to lose mass.

Suggest **two** different ways an obese person could lose mass.

.....

.....

.....

.....

(2)
(Total 7 marks)

Q4. The table is from a packet of biscuits.

Average values	**Per 100 g**	**Per biscuit**	**UK guideline daily amounts**	
			Adults	**Children (5 – 10 years)**
Energy	1974 kJ	446 kJ	8500 kJ	7500 kJ
Protein	7.1 g	1.1 g	45 g	24 g
Carbohydrate	62.8 g	9.3 g	230 g	220 g
Fat	21.3 g	3.2 g	70 g	70 g
Sodium	3.6 g	0.5 g	2.4 g	1.4 g

One day a ten-year-old child ate a whole packet of the biscuits.
The biscuits in the pack had a mass of 400 g.

(a) (i) How many grams of carbohydrate did the child eat?

.....

.....

Number of grams .....

(2)

(ii) The amount of carbohydrate you calculated in part (a)(i) was more than the UK guideline daily amount for the child.

How much more?

.....

.....

Number of grams .....

(1)

(b) Give **two** possible health effects on the child of eating so many biscuits every day.

1 .....

2 .....

(2)
(Total 5 marks)

Q5. Diabetes is a disease in which the concentration of glucose in a person's blood may rise to fatally high levels.
Insulin controls the concentration of glucose in the blood.

(a) Where is insulin produced?

Draw a ring around **one** answer.

gall bladder **liver** **pancreas**

(1)

(b) People with diabetes may control their blood glucose by injecting insulin.

(i) If insulin is taken by mouth, it is digested in the stomach.

What type of substance is insulin?

Draw a ring around **one** answer.

carbohydrate **fat** **protein**

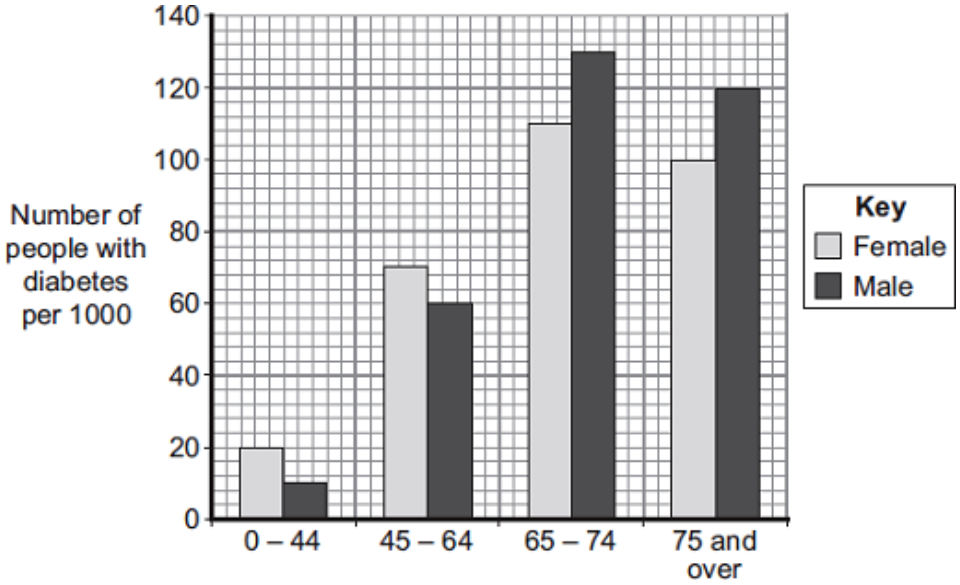
(1)

(ii) Apart from using insulin, give **one** other way people with diabetes may reduce their blood glucose.

.....

(1)

(c) The bar chart shows the number of people with diabetes in different age groups in the UK.



(i) Describe how the number of males with diabetes changes between the ages of 0 – 44 years and 75 years and over.

.....

.....

.....

.....

.....

.....

.....

.....

(3)

(ii) Compare the number of males and females with diabetes:

between the ages of 0 and 64 years

.....

.....

.....

over the age of 65 years.

.....

.....

.....

(2)
(Total 8 marks)

Q6. Scientists have produced many different types of GM (genetically modified) food crops.

(a) Use words from the box to complete the sentence about genetic engineering.

clones	**chromosomes**	**embryos**	**genes**

GM crops are produced by cutting ..... out of the

..... of one plant and inserting them into the cells of a crop plant.

(2)

(b) Read the information about GM food crops.

- Herbicide-resistant GM crops produce higher yields.
- Scientists are uncertain about how eating GM food affects our health.
- Insect-resistant GM crops reduce the total use of pesticides.
- GM crops might breed naturally with wild plants.
- Seeds for a GM crop can only be bought from one manufacturer.
- The numbers of bees will fall in areas where GM crops are grown.

Use this information to answer these questions.

(i) Give **two** reasons why some farmers are in favour of growing GM crops.

1 .....

.....

2 .....

.....

(2)

(ii) Give **two** reasons why many people are against the growing of GM crops.

1 .....

.....

2 .....

.....

(2)

(Total 6 marks)

Q7. Students tested eight different foods, **A** – **H**, for carbohydrate, fat and protein.

The table shows the students' results.

Food	Carbohydrate	Fat	Protein
A	✗	✓	✓
B	✗	✓	✓
C	✓	✓	✓
D	✓	✗	✓
E	✗	✗	✗
F	✓	✗	✗
G	✓	✗	✗
H	✓	✗	✓

Key
✓ = present
✗ = not present

(a) (i) How many of the foods contained **only** carbohydrate?

.....

(1)

(ii) Which of the foods contained carbohydrate **and** fat **and** protein?
Tick (✓) **one** box.

B, **C** and **D** only ☐

B and **D** only ☐

C only ☐

(1)

(b) A person's diet should contain carbohydrate **and** fat **and** protein.

Give **two** reasons why.

1.....

.....

2.....

.....

(2)

(c) As well as carbohydrate, fat and protein, the body also needs vitamins and mineral ions.

(i) Why does the body need vitamins and mineral ions?

.....

(1)

(ii) Draw a ring around the correct answer to complete the sentence.

Compared to the mass of carbohydrates, the body needs [a greater / a smaller / the same] mass of vitamins and mineral ions.

(1)

(Total 6 marks)