

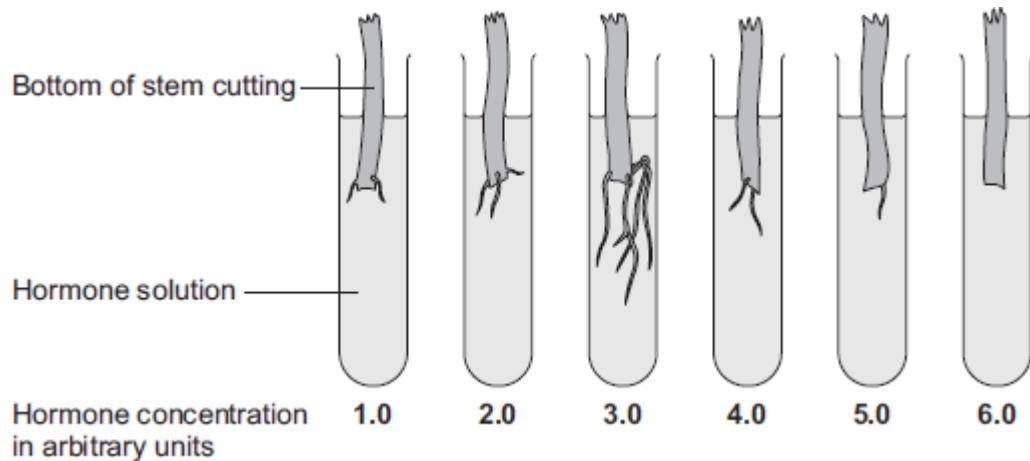
HORMONAL COORDINATION IN HUMANS PART 2

Q1.

- (a) A student investigated the effect of a plant hormone on the growth of roots by plant cuttings.

The student took six stem cuttings from the same plant. He put the cuttings in test tubes containing hormone solutions of different concentrations.

The image below shows the six cuttings after 2 weeks.



- (i) What is the best concentration of hormone for encouraging root growth?
 _____ arbitrary units (1)

- (ii) Give **two** functions of plant roots.
 1. _____

 2. _____
 _____ (2)

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

Taking cuttings to produce new plants is an example of

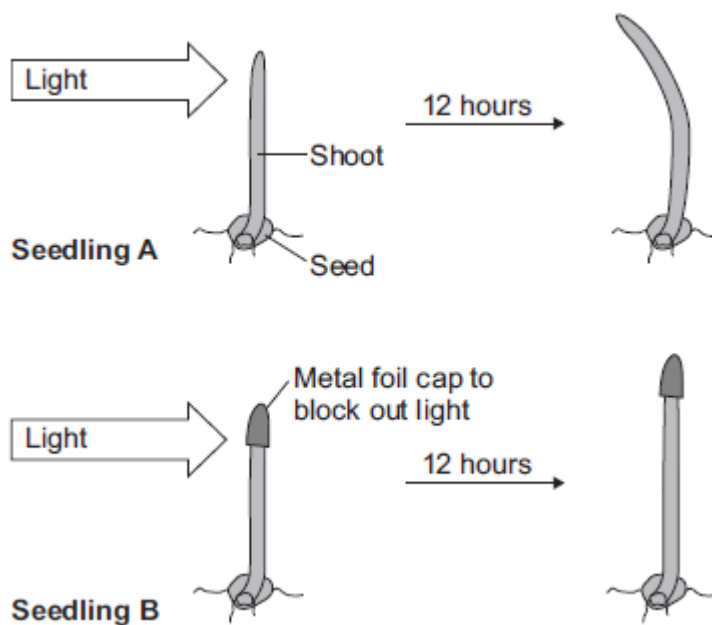
asexual reproduction. genetic engineering. sexual reproduction.

(1)

- (b) Another student investigated the effect of light, shining from one side, on the growth of plant shoots.

The diagram below shows how the student treated the shoots and the results she

obtained after 12 hours.



(i) What is the response to light shown by **Seedling A** called?

Tick (✓) **one** box.

cloning

a reflex

a tropism

(1)

(ii) The student concluded that the shoot **tip** is sensitive to light.

What evidence is there in the diagram above for this conclusion?

(2)

(c) The seedling produces a hormone which helps to control its response to light.

(i) What is the name of the hormone?

Tick (✓) **one** box.

auxin

glucagon

glycerol

(1)

- (ii) How does the hormone control the response of **Seedling A** to light shining from one side?

(4)

(Total 12 marks)

Q2.

It is important that the amount of water in the body is controlled.

- (a) The table below shows the main ways that a person takes in and loses water in one day.

Water taken in		Water lost	
Method	Volume in cm ³	Method	Volume in cm ³
Drink	1450	Urine	1500
Food	800	Sweat	600
Metabolic water	350	Breath	
		Faeces	100
Total	2600	Total	2600

- (i) Calculate the volume of water lost from the body through breathing.

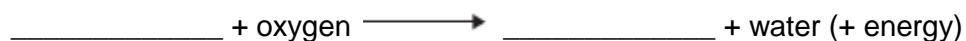
Use information from the table above.

Volume of water lost through breathing = _____ cm³

(2)

- (ii) Metabolic water is water produced by aerobic respiration.

Complete the equation for aerobic respiration.



(2)

- (iii) If the water intake stays the same, what will happen to the volumes of sweat and urine lost from the body on a much hotter day?

Draw a ring around the correct answer to complete each sentence.

The volume of sweat will

decrease.
increase.
stay the same.

The volume of urine will

decrease.
increase.
stay the same.

(2)

- (b) The kidneys help to control the water content of the body and the concentrations of substances dissolved in the body fluids. The kidneys do this by filtering the blood and then reabsorbing back into the blood the substances needed by the body.

The table above shows typical concentrations of some of the substances dissolved in a person's blood plasma, in the kidney filtrate, and in the urine.

Substance	Blood plasma in g per dm ³	Kidney filtrate in g per dm ³	Urine in g per dm ³
Protein	70	0	0
Glucose	1	1	0
Urea	0.3	0.3	20
Sodium ions	3	3	6

- (i) The table below shows that sodium ions are twice as concentrated in the urine as in the blood plasma.

Calculate how many times more concentrated **urea** is in the urine compared to the blood plasma.

Use information from the table.

Answer = _____ times more concentrated

(2)

- (ii) What is the main cause of this increase in concentration of urea between the blood plasma and the urine?

Tick (✓) **one** box.

Increased urea production by the kidney

Reabsorption of water by the kidney

Increased deamination of amino acids by the liver

(1)

- (iii) The table shows that both protein and glucose are found in the blood plasma but **not** in the urine.

Use your knowledge of kidney functioning to explain why.

Protein _____

Glucose _____

(4)

- (c) Some people have kidney failure.

The two main types of treatment for kidney failure are dialysis and a kidney transplant operation.

Suggest reasons why most doctors think that a kidney transplant is better than dialysis treatment.

(4)
(Total 17 marks)

Q3.

Phenylketonuria (PKU) is an inherited condition. PKU makes people ill.

(a) PKU is caused by a recessive allele.

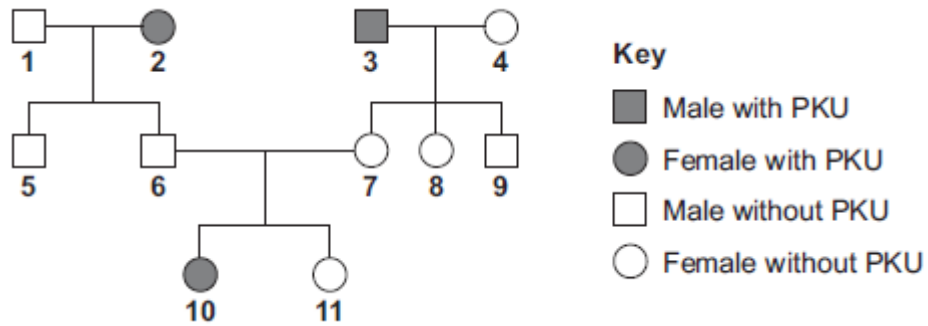
(i) What is an allele?

(1)

(ii) What is meant by recessive?

(1)

(b) The diagram below shows the inheritance of PKU in one family.



(i) Give **one** piece of evidence from the diagram that PKU is caused by a recessive allele.

(1)

(ii) Persons **6** and **7** are planning to have another child. Use a genetic diagram to find the probability that the new child will have PKU.

Use the following symbols in your answer:

N = the dominant allele for **not** having PKU

n = the recessive allele for PKU.

Probability = _____

(4)

- (c) Persons **6** and **7** wish to avoid having another child with PKU.

A genetic counsellor advises that they could produce several embryos by IVF treatment.

- (i) During IVF treatment, each fertilised egg cell forms an embryo by cell division.

Name this type of cell division.

(1)

- (ii) An embryo screening technique could be used to find the genotype of each embryo.

An unaffected embryo could then be placed in person **7**'s uterus.

The screening technique is carried out on a cell from an embryo after just three cell divisions of the fertilised egg.

How many cells will there be in an embryo after the fertilised egg has

divided three times?

(1)

- (iii) During embryo screening, a technician tests the genetic material of the embryo to find out which alleles are present.

The genetic material is made up of large molecules of a chemical substance.

Name this chemical substance.

(1)

- (d) Some people have ethical objections to embryo screening.

- (i) Give **one** ethical objection to embryo screening.

(1)

- (ii) Give **one** reason in favour of embryo screening.

(1)

(Total 12 marks)

Q4.

Human body temperature must be kept within narrow limits.

The image shows a cyclist in a race.



© Ljupco/iStock/Thinkstock

(a) Use the correct answer from the box to complete each sentence.

blood	brain	kidney	sweat	urine
--------------	--------------	---------------	--------------	--------------

The cyclist's body temperature is monitored by a centre in the _____ .

This centre is sensitive to the temperature of the cyclist's _____ .

If the cyclist's body temperature increases, his body increases the production of _____ .

(3)

(b) (i) Cyclists drink sports drinks after a race.

The table below shows the ratio of glucose to ions in three sports drinks, **A**, **B** and **C**.

	Sports drink		
	A	B	C
Ratio of glucose (g per dm³) to ions (mg per dm³)	15:14	12:1	2:7

The closer this ratio of glucose to ions is to 1:1 in a sports drink, the faster the body replaces water.

Which sports drink, **A**, **B** or **C**, would replace water fastest in an

athlete?

(1)

(ii) Why should sports drinks contain ions?

(1)

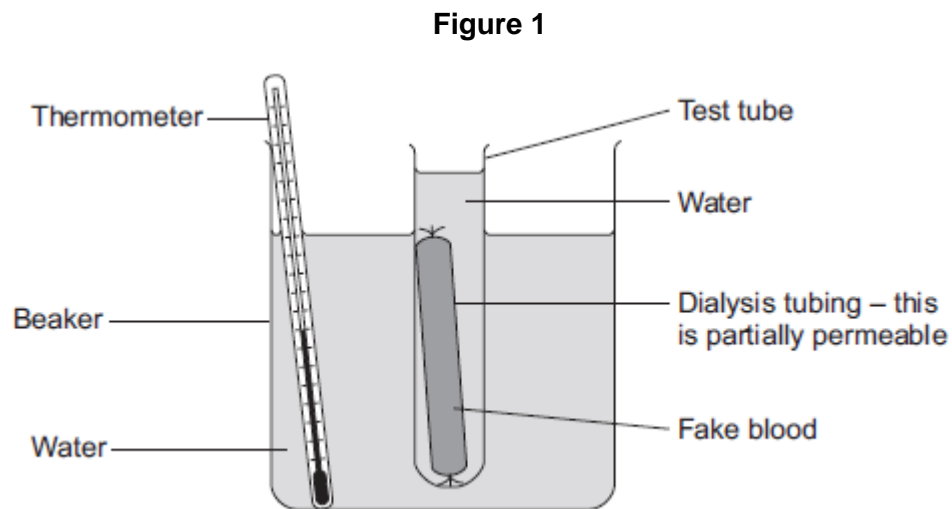
(iii) Why should a person with diabetes **not** drink too much sports drink?

Q5.

A person's kidneys stop working. The person may be treated using a dialysis machine.

Some students made a model of a dialysis machine.

Figure 1 shows the students' model.



The fake blood contained:

- water
- sodium ions
- urea
- glucose
- protein.

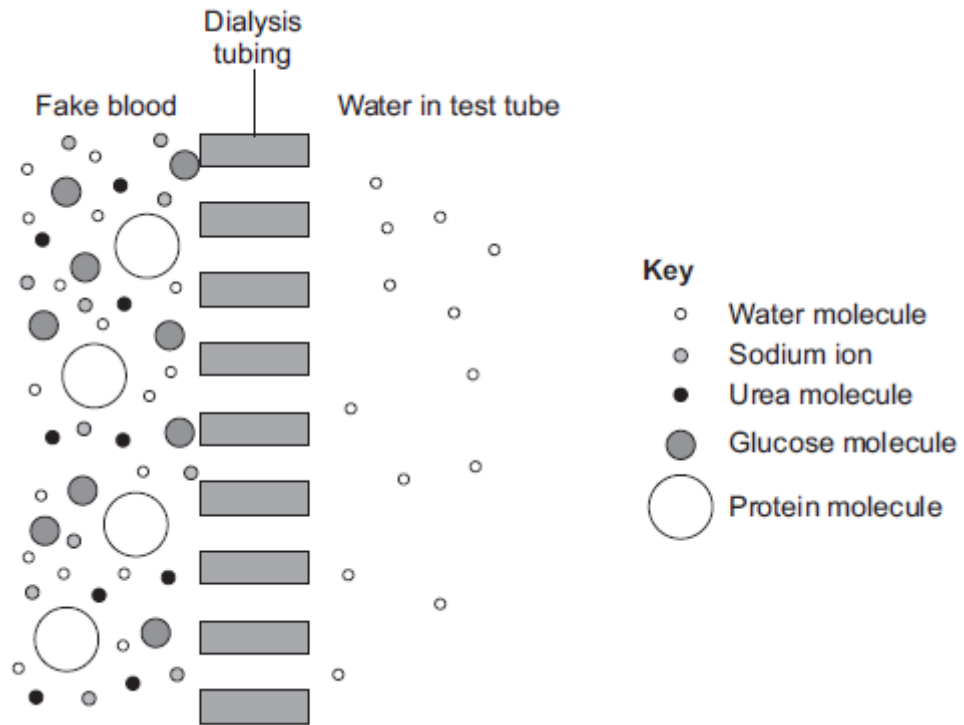
(a) (i) Suggest why the students kept the water in the beaker at 37 °C.

(1)

(ii) The dialysis tubing separates the fake blood from the water in the test tube.

Figure 2 shows the fake blood, the dialysis tubing and the water in the test tube.

Figure 2



After 1 hour, the students tested the water in the test tube to see which substances had filtered through from the fake blood.

Name **one** substance that the students would find in the water in the test tube after 1 hour.

(1)

(iii) Give a reason for your answer to part (a)(ii).

(1)

(iv) In hospitals, dialysis machines use dialysis fluid, not pure water.

Dialysis fluid contains the same concentration of useful substances as the blood.

Which substance is at the same concentration in dialysis fluid as in blood?

Tick (✓) **one** box.

Glucose

Insulin

Oxygen

(1)

- (b) When the kidneys stop working, the person can be treated by a continuous process called CPD.

In CPD:

- dialysis fluid is put into the abdomen
- the fluid is changed four times a day at home
- changing the fluid takes about 45 minutes.

Suggest **two** advantages of having CPD instead of treatment on a dialysis machine.

1. _____

2. _____

(2)

(Total 6 marks)

Q6.

Blood is part of the circulatory system.

- (a) (i) Give **one** function of white blood cells.

(1)

- (ii) Which of the following is a feature of platelets?

Tick (✓) **one** box.

They have a nucleus.

They contain haemoglobin.

They are small fragments of cells.

(1)

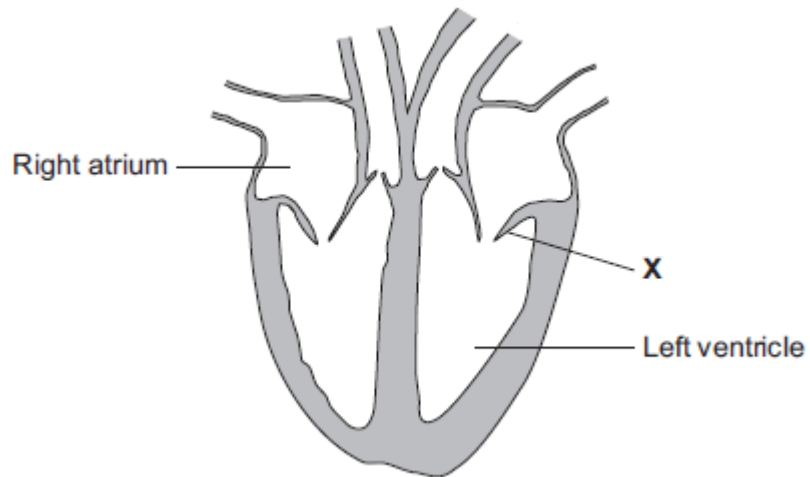
- (b) Urea is transported by the blood plasma from where it is made to where the urea is excreted.

Complete the following sentence.

Blood plasma carries urea from where it is made in the _____

to the _____ where the urea is removed from the blood.

(c) The illustration shows a section through the human heart.



Structure **X** is a valve. If valve **X** stops working, it may need to be replaced.

A scientist is designing a new heart valve. The scientist knows that the valve must be the correct size to fit in the heart.

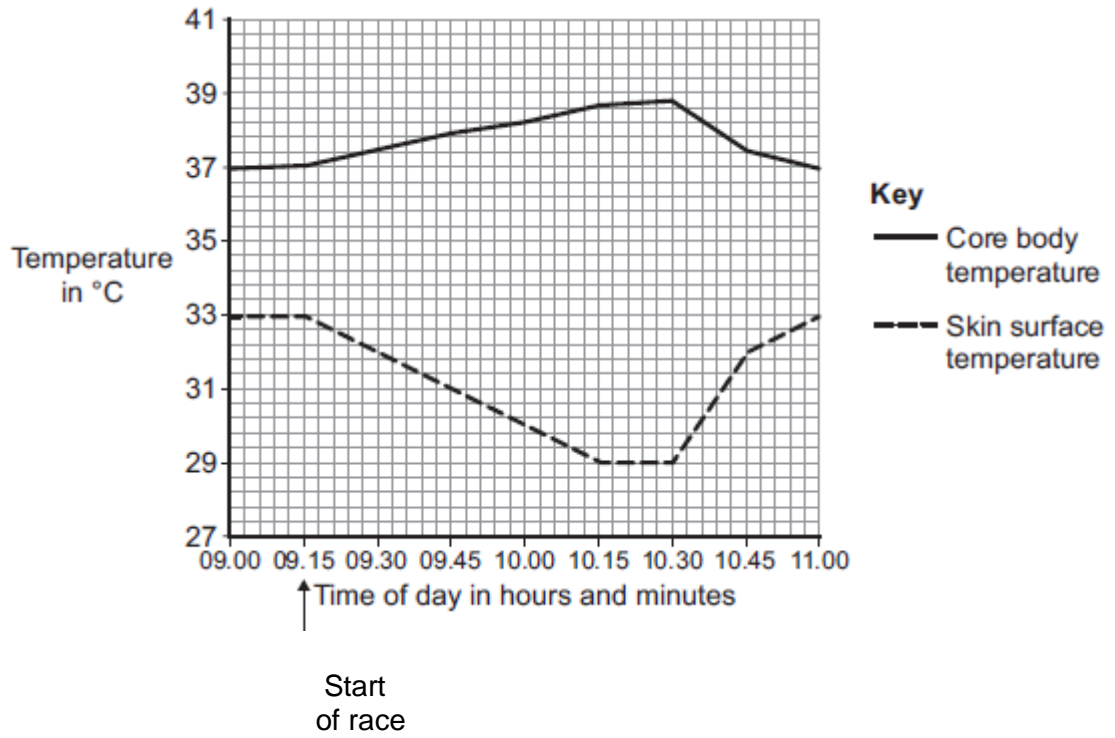
Suggest **two** other factors the scientist needs to consider so that the newly designed valve works effectively in the heart.

(2)

(Total 6 marks)

Q7.

The graph shows the core body temperature and the skin surface temperature of a cyclist before, during and after a race.



- (a) (i) When the cyclist finished the race, his core body temperature started to decrease.

How long did the race last?

(1)

- (ii) Describe and explain the different patterns shown in the core body temperature and skin surface temperature between 09.15 and 10.15.

(6)

- (iii) After 10.30, the core body temperature decreased.

Explain how changes in the blood vessels supplying the skin caused the skin surface temperature to increase.

(2)

- (b) During the race, the cyclist's blood glucose concentration began to decrease.

Describe how the body responds when the blood glucose concentration begins to decrease.

(3)

(Total 12 marks)

Q8.

The body controls internal conditions.

- (a) Use words from the box to complete the sentences about water loss from the body.

kidneys	liver	lungs	skin
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(i) Water is lost in sweat via the _____

(1)

(ii) Water is lost in urine via the _____

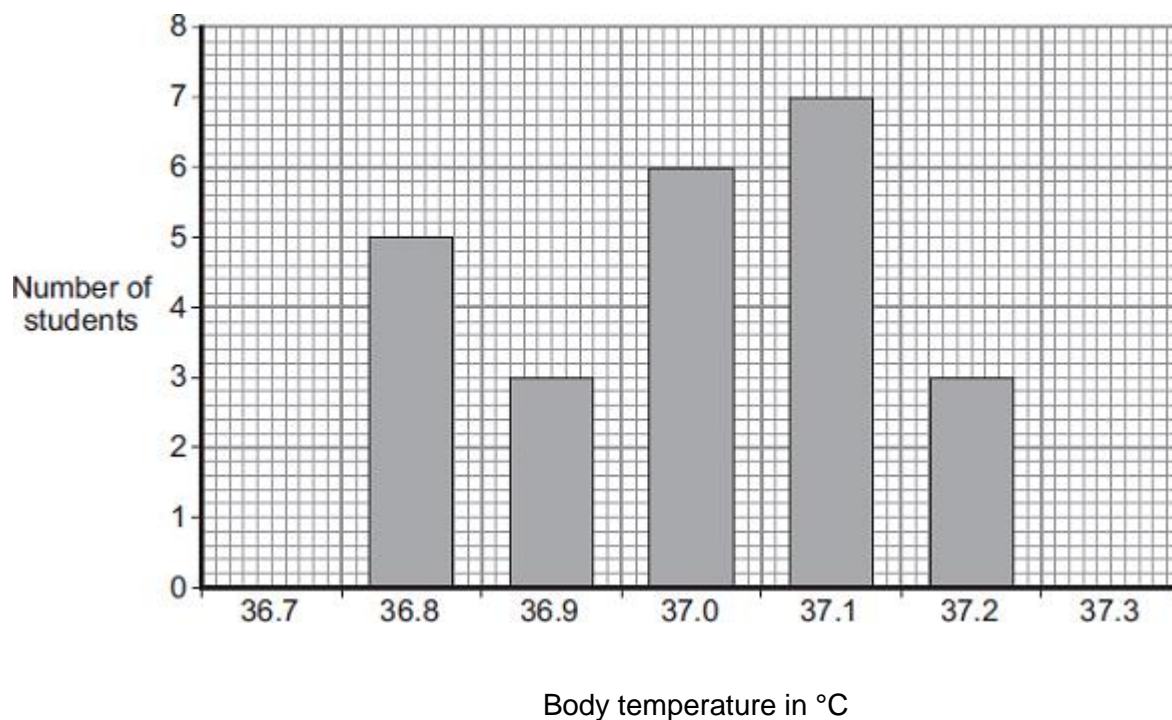
(1)

(iii) Water is lost in the breath via the _____

(1)

- (b) Students investigated body temperature in the class.

The bar chart shows the results.



- (i) One student used the bar chart to calculate the mean body temperature of the class.
The student calculated the mean body temperature as 37.0 °C.

How did the student use the bar chart to calculate the mean?

(2)

- (ii) How many students had a body temperature higher than the mean of 37.0 °C

(1)

- (iii) Body temperature must be kept within a narrow range.

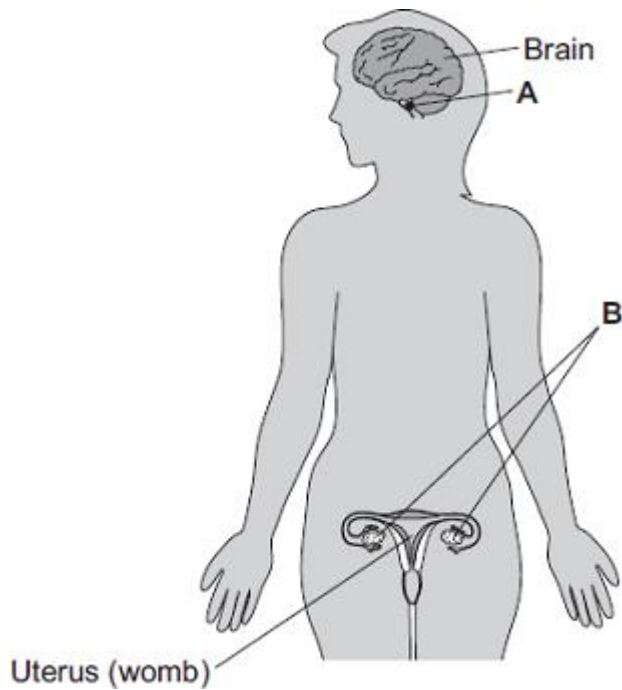
Why?

(1)

(Total 7 marks)

Q9.

The diagram shows the position of two glands, **A** and **B**, in a woman.



(a) (i) Name glands **A** and **B**.

A _____

B _____

(2)

(ii) Gland **A** produces the hormone Follicle Stimulating Hormone (FSH).
FSH controls changes in gland **B**.

How does FSH move from gland **A** to gland **B**?

(1)

(b) (i) A woman is not able to become pregnant. The woman does not produce mature eggs. The woman decides to have In Vitro Fertilisation (IVF) treatment.

Which **two** hormones will help the woman produce and release mature eggs?

Tick (✓) **one** box.

FSH and Luteinising Hormone (LH)

FSH and oestrogen

Luteinising Hormone (LH) and oestrogen

(1)

(ii) Giving these hormones to the woman helps her to produce several mature eggs.

Doctors collect the mature eggs from the woman in an operation.

Describe how the mature eggs are used in IVF treatment so that the woman may become pregnant.

(3)

(iii) IVF clinics have been set a target to reduce multiple births.

At least 76% of IVF treatments should result in single babies and a maximum of 24% of treatments should result in multiple births.

Suggest **one** reason why the clinics have been set this target to reduce multiple births.

(1)

(c) Two clinics, **R** and **S**, used IVF treatment on women in 2007. Doctors at each clinic used the results of the treatments to predict the success rate of treatments in 2008.

The table shows the information.

	Total number of IVF treatments in 2007	Number of IVF treatments resulting in pregnancy in 2007	Predicted percentage success rate in 2008
Clinic R	1004	200	18–23
Clinic S	98	20	3–56

(i) Compare the success rates of the two clinics in 2007.

(1)

(ii) The range of the predicted success rate in 2008 for clinic **R** is much smaller than the range of the predicted success rate for clinic **S**.

Suggest why.

(2)
(Total 11 marks)

Q10.

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

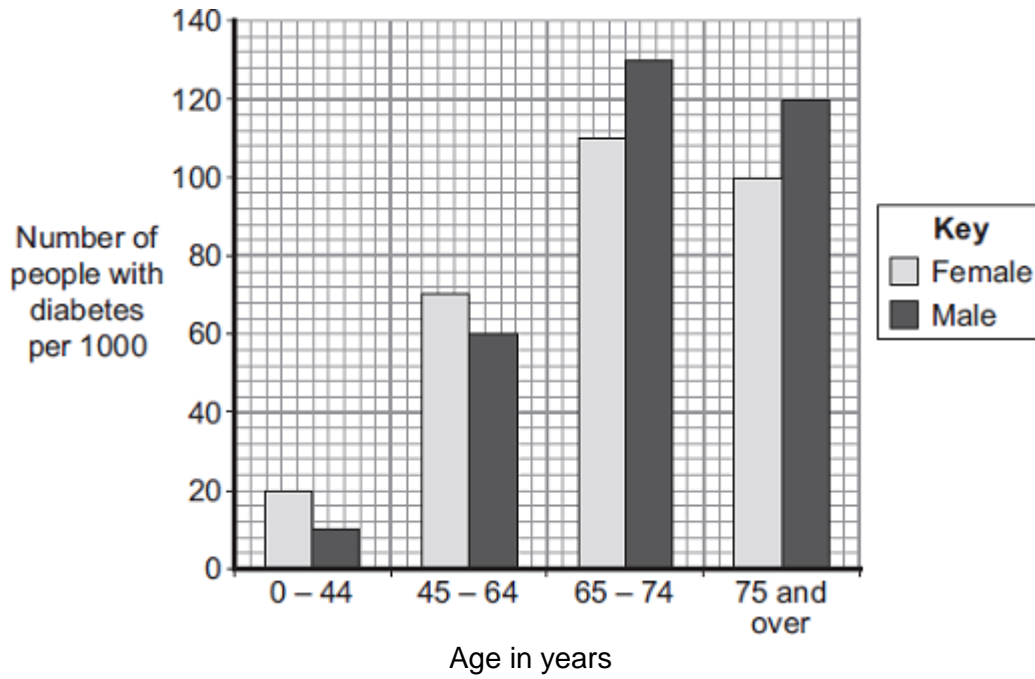
protein

(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)

Q11.

- (a) Which organ in the body monitors the concentration of glucose (sugar) in the blood?

(1)

- (b) In a healthy person, insulin prevents high levels of glucose in the blood. To make insulin, cells in the pancreas need amino acids.

Amino acids cannot be stored in the body.

Describe, as fully as you can, what happens to amino acids that cannot be stored in the body.

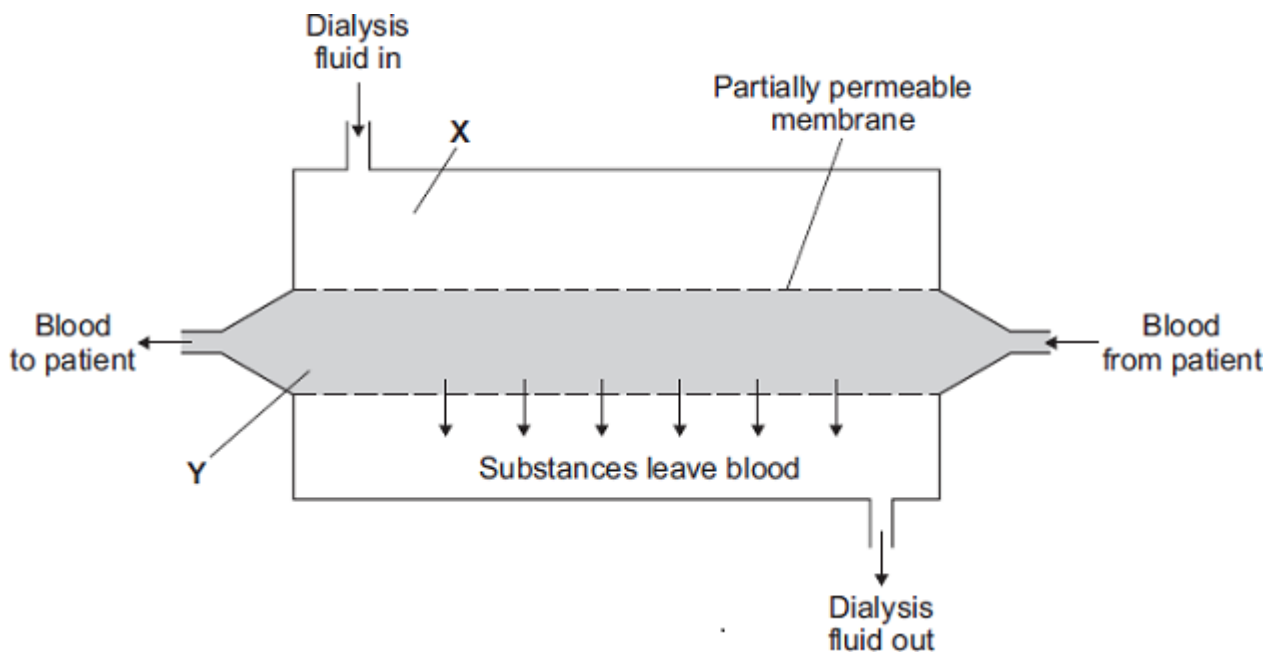
(3)

(Total 4 marks)

Q12.

People with kidney disease may be treated by dialysis.

The diagram shows a dialysis machine.



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

A person loses mass during dialysis. One patient lost 2.2 kilograms during a dialysis session.

(i) This person lost mass mainly because

salt
urea
water

 was removed from the blood.

(1)

(ii) This substance was able to pass through the partially permeable membranes

because its molecules are

large.
round.
small.

(1)

(iii) The concentration of sodium ions at **X** is 3.15 grams per dm³.

At the end of a dialysis session, the most likely concentration of sodium ions

at **Y** would be

0.00
3.15
6.30

 grams per dm³.

(1)

(b) The table shows the cost, in the UK, of treating one patient who has kidney disease.

Treatment	Cost per year in pounds
Dialysis	30 000
Kidney transplant: operation + first year's medical care medical care in each further year	51 000 5 000

(i) During the first year, dialysis treatment is cheaper than a kidney transplant.

How much cheaper is the dialysis treatment? _____ pounds

(1)

(ii) After some time, the cost of treating a patient by a transplant operation would be cheaper than continual treatment by dialysis.

How many years would it take?

Draw a ring around **one** answer.

2 years

3 years

4 years

(1)

- (iii) A transplant patient needs to take drugs for the rest of his life to suppress the immune system.

Why is it necessary to suppress the immune system ?

(1)

(Total 6 marks)

Q13.

Urine consists of water, ions and other substances such as urea.

Urine is formed in the kidney by filtering the blood.

The diameter of the pores in the filter is about 6 nanometres.

The table shows the diameters of the molecules of some of the substances in the blood.

Substance	Diameter of molecule in nanometres
A	10 to 20
B	1
C	0.6
D	0.5
E	0.2

Use information from the table and your own knowledge to answer the questions.

- (a) (i) Which substance, **A**, **B**, **C**, **D** or **E**, is protein?

(1)

- (ii) Protein is **not** found in the urine of a healthy person.

Explain why.

(2)

- (b) Substance **B** is **not** found in the urine of a healthy person. Suggest an explanation for this.

(2)

- (c) Haemolytic anaemia is a disease in which some of the red blood cells burst open.

Small amounts of haemoglobin may be found in the urine of a person suffering from haemolytic anaemia.

The diameter of a haemoglobin molecule is 5.5 nanometres.

Haemoglobin is **not** found in the urine of a healthy person, but haemoglobin can be found in the urine of a person with haemolytic anaemia.

Explain why.

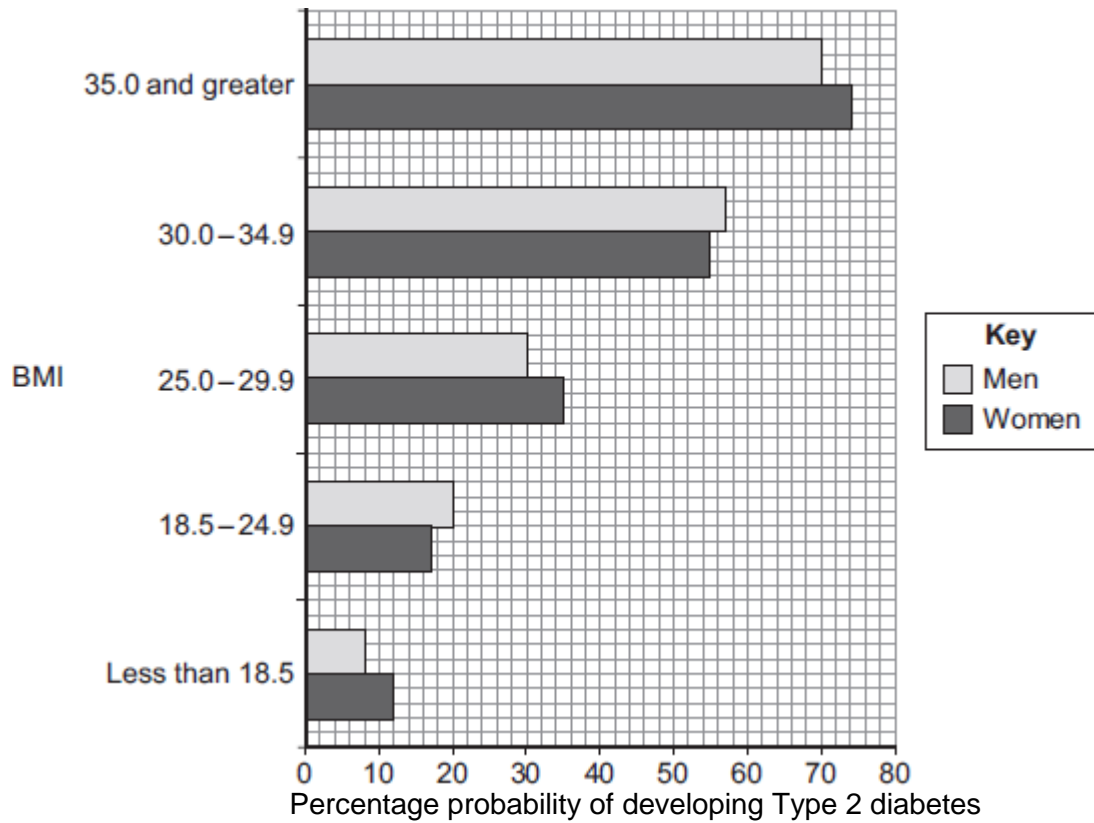
(3)

(Total 8 marks)

Q14.

The number of cases of Type 2 diabetes in the UK is increasing rapidly.

- (a) Describe how insulin and glucagon help control the blood sugar concentration in a healthy person.

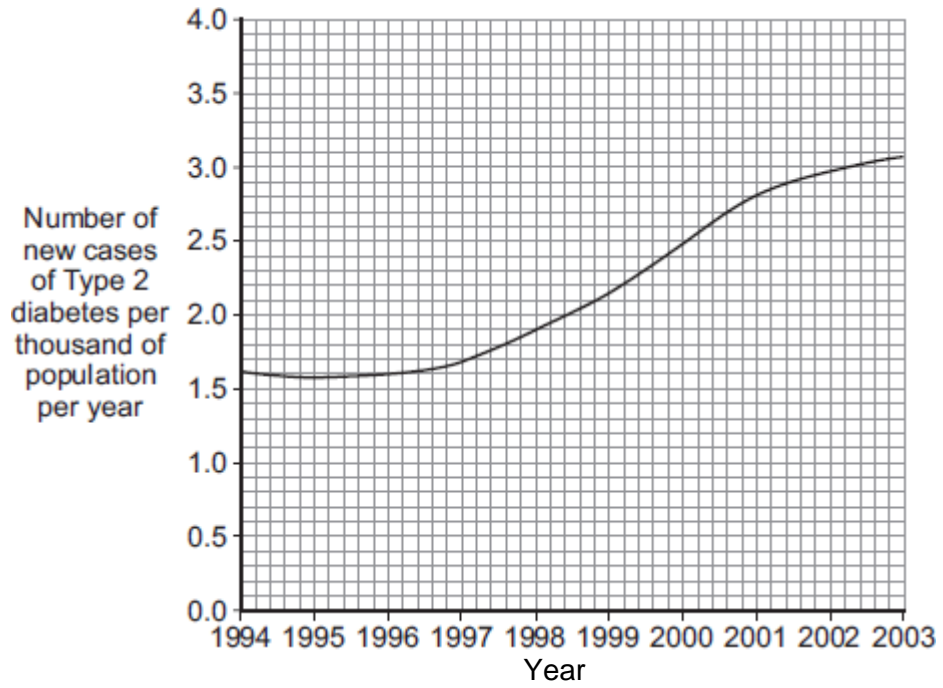


Suggest an explanation for the relationship between BMI and the risk of developing Type 2 diabetes.

(2)

- (ii) **Graph 2** shows changes in the number of new cases of Type 2 diabetes in the UK.

Graph 2



Suggest explanations for the trend shown by the data in **Graph 2**.

(3)
(Total 12 marks)

Q15.

One factor that may affect body mass is *metabolic rate*.

(a) (i) What is meant by *metabolic rate* ?

(1)

(ii) Metabolic rate is affected by the amount of activity a person does.

Give **two** other factors that may affect a person's metabolic rate.

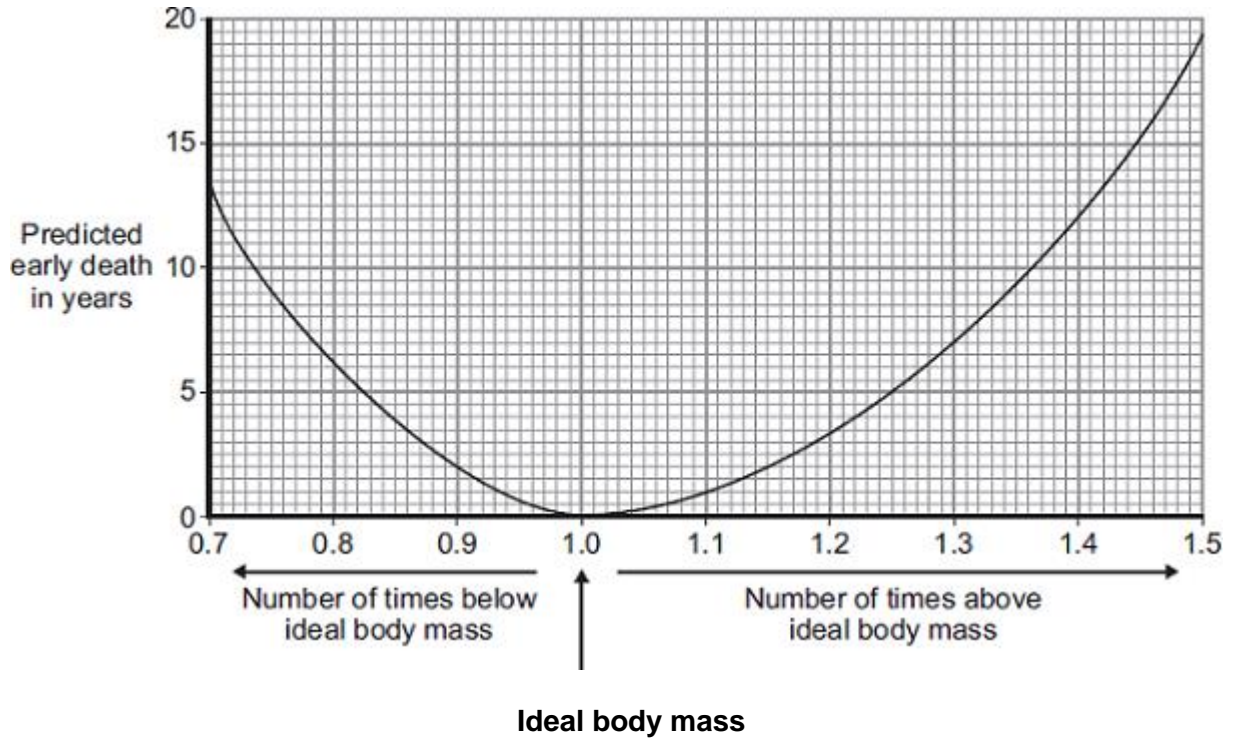
1. _____

2. _____

- (b) Predicted early death is the number of years that a person will die before the mean age of death for the whole population. The predicted early death of a person is affected by their body mass.

Scientists have calculated the effect of body mass on predicted early death.

The graph shows the results of the scientists' calculations.



The number of times above or below ideal body mass is given by the equation:

$$\frac{\text{Actual body mass}}{\text{Ideal body mass}}$$

In the UK the mean age of death for women is 82.

A woman has a body mass of 70 kg. The woman's ideal body mass is 56 kg.

- (i) Use the information from the graph to predict the age of this woman when she dies.

Age at death = _____ years

- (ii) The woman could live longer by changing her lifestyle.

Give **two** changes she should make.

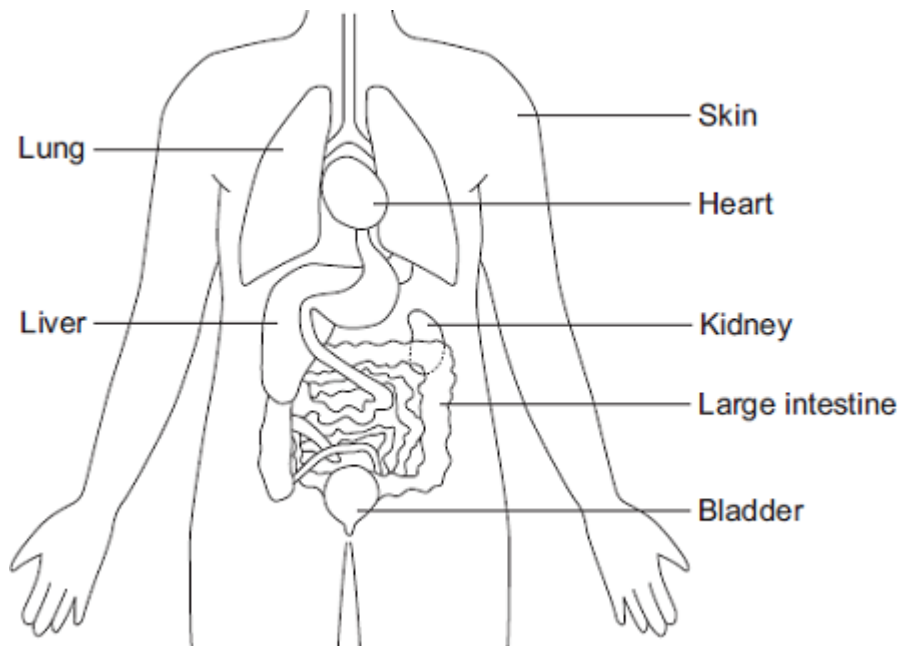
1. _____

2. _____

(2)
(Total 7 marks)

Q16.

The diagram shows some of the organs of the human body.



(a) Which organ labelled on the diagram:

(i) produces urine _____

(1)

(ii) stores urine _____

(1)

(iii) produces urea _____

(1)

(iv) gets rid of carbon dioxide _____

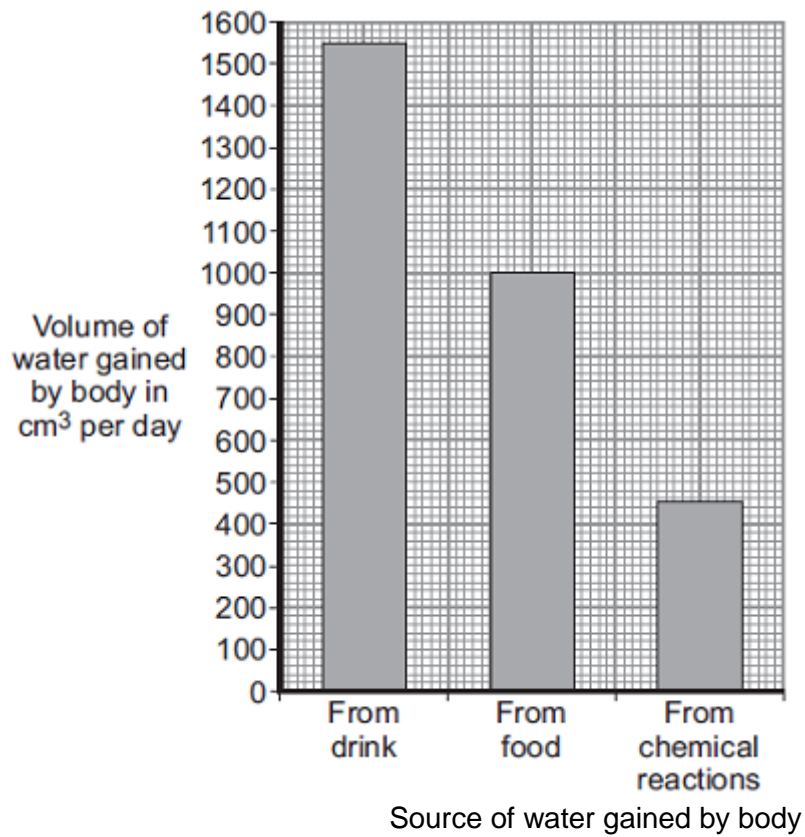
(1)

(v) helps to control body temperature? _____

(1)

(b) **Bar chart 1** shows the volume of water the human body gains each day.

Bar chart 1



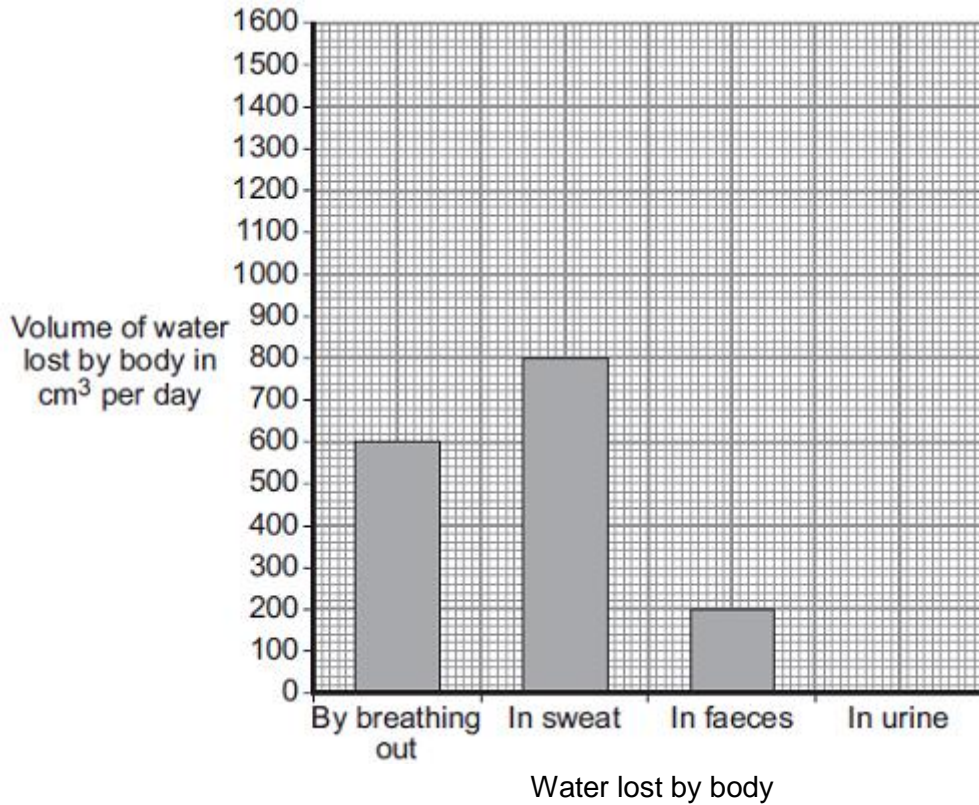
- (i) Calculate the total volume of water the body gains each day.

Total volume of water gained = _____ cm³

(2)

Bar chart 2 shows the volume of water lost each day by breathing out, in sweat and in faeces.

Bar chart 2



- (ii) Calculate the total volume of water lost each day by breathing out, in sweat and in faeces.

Volume = _____ cm³

(1)

- (iii) The volume of water the body loses must balance the volume of water the body gains.

Use your answers to part (b)(i) and part (b)(ii) to calculate the volume of water lost in urine.

Volume of water lost in urine = _____ cm³

(1)

- (iv) Plot your answer to part (b)(iii) on **Bar chart 2**.

(1)

- (v) After taking some types of recreational drugs, the kidneys produce very little urine.

What happens to the body cells if the kidneys produce very little urine?

(1)
(Total 11 marks)

Q17.

Type 1 diabetes develops when the body does not produce enough insulin.

- (a) Which organ produces insulin?

_____ (1)

- (b) One treatment for diabetes is to inject insulin.

The table gives the properties of four different types of insulin, **A**, **B**, **C** and **D**.

Type of insulin	Time taken for the insulin to begin to work in minutes	Time taken for insulin to reach maximum concentration in the blood in minutes	Time when insulin is no longer effective in hours
A	15-20	30-90	3-4
B	30-60	80-120	4-6
C	120-240	360-600	14-16
D	240-360	600-960	18-20

- (i) Some people with diabetes need to inject insulin just before a meal to stop a big increase in blood sugar concentration.

Which type of insulin, **A**, **B**, **C** or **D**, should these people with diabetes inject just before a meal?

Give the reason for your answer.

(2)

- (ii) A person with diabetes is told to inject type **B** insulin immediately after breakfast at 09.00.

The person with diabetes is told to then inject a second type of insulin at lunchtime at 12.00.

The second type of insulin should keep the blood sugar level under control for the rest of the 24 hours.

Which type of insulin, **A**, **C** or **D**, should this person with diabetes inject at lunchtime?

Give the reason for your answer.

(2)

- (iii) Apart from injecting insulin, give **one** other way in which Type 1 diabetes can be controlled.

(1)

(Total 6 marks)

Q18.

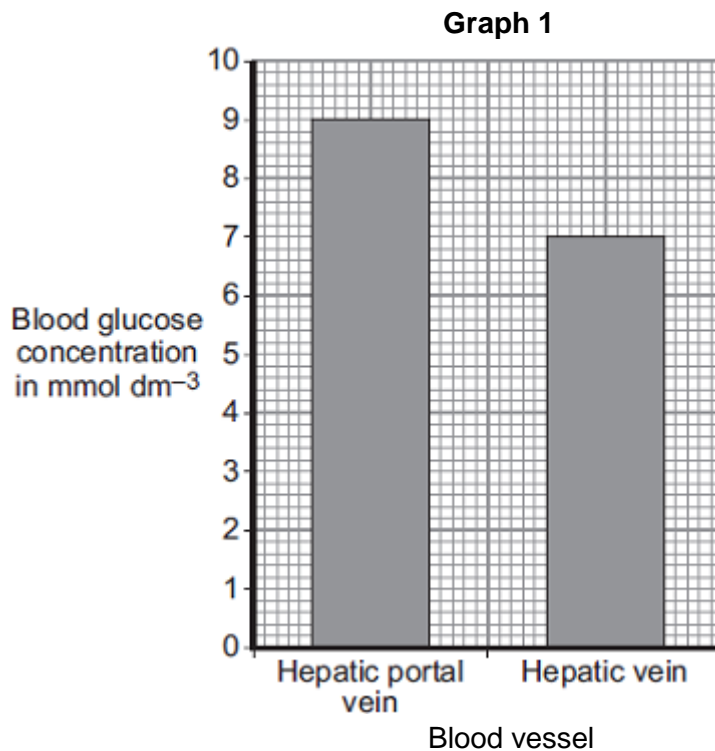
The pancreas and the liver are both involved in the control of the concentration of glucose in the blood.

The liver has two veins:

- the hepatic portal vein taking blood from the small intestine to the liver
- the hepatic vein taking blood from the liver back towards the heart.

Scientists measured the concentration of glucose in samples of blood taken from the hepatic portal vein and the hepatic vein. The samples were taken 1 hour and 6 hours after a meal.

Graph 1 shows the concentration of glucose in the two blood vessels 1 hour after the meal.

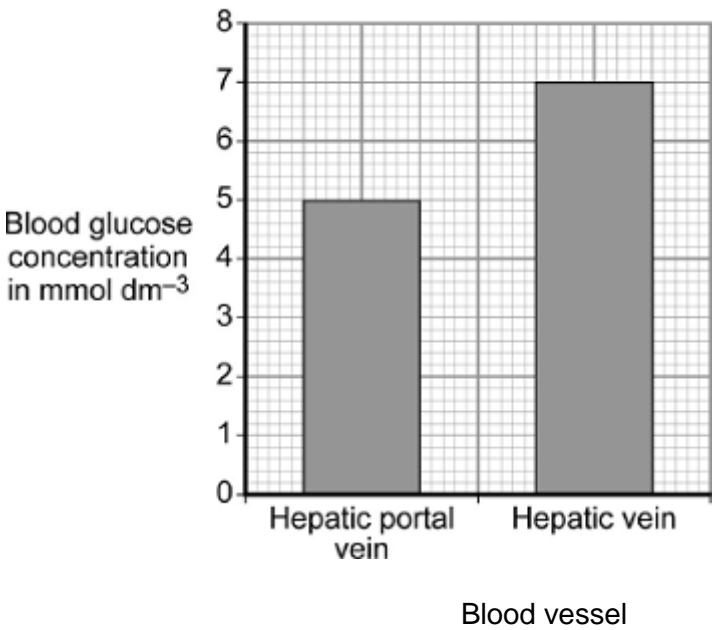


- (a) The concentration of glucose in the blood of the two vessels is different. Explain why.

(3)

(b) **Graph 2** shows the concentration of glucose in the two blood vessels 6 hours after the meal.

Graph 2



(i) The concentration of glucose in the blood in the hepatic portal vein 1 hour after the meal is different from the concentration after 6 hours.

Why?

(1)

(ii) The person does **not** eat any more food during the next 6 hours after the meal.

However, 6 hours after the meal, the concentration of glucose in the blood in the hepatic vein is higher than the concentration of glucose in the blood in the hepatic portal vein.

Explain why.

(3)

(Total 7 marks)

Q19.

The human body produces many hormones.

(a) (i) What is a *hormone*?

(1)

(ii) Name an organ that produces a hormone.

(1)

(iii) How are hormones transported to their target organs?

(1)

(b) Describe how the hormones FSH, oestrogen and LH are involved in the control of the menstrual cycle.

(3)

(Total 6 marks)

Q20.

The diagram shows an intra-uterine contraceptive device (IUCD).

Q21.

Diabetes is a disease in which a person's blood glucose concentration may rise.

Doctors give people drugs to treat diabetes.

The table shows some of the side effects on the body of four drugs, **A**, **B**, **C** and **insulin**, used to treat diabetes.

Drug	Side effects on the body
A	Weight loss Liver, kidney and heart damage Feeling of sickness
B	Weight gain Damage to some cells in pancreas
C	More water is kept in the body Weight gain Increased chance of bone breakage in women
Insulin	A little more water is kept in the body Weight gain Increased risk of lung damage

- (a) Which drug, **A**, **B**, **C** or **insulin**, is most likely to result in an increase in blood sugar concentration in some people?

Explain your answer.

Drug _____

Explanation

(2)

- (b) (i) Drugs **A**, **B** and **C** can be taken as tablets.

The chemicals in the tablets are absorbed into the blood from the digestive system.

Insulin is a protein.

Insulin **cannot** be taken as a tablet.

Why?

(1)

- (ii) Other than using drugs, give **two** methods of treating diabetes.

1. _____

2. _____

Q22.

Doctors use dialysis to treat patients with kidney failure.

The table shows the sizes of molecules of some of the substances found in blood plasma.

Substance	Size of molecule in arbitrary units
Water	18
Sodium ion	23
Urea	60
Glucose	180
Albumin (a blood protein)	68 000

(a) Use information from the table to answer the questions.

- (i) Albumin is a blood protein. Albumin is **not** removed from the blood during dialysis.

Explain why.

(2)

- (ii) During a dialysis session, one patient's body mass decreased by 2 kilograms.

This decrease was mainly due to removal from the blood of one of the substances in the table.

Which substance was this? _____

(1)

- (iii) The substance you named in part (a)(ii) was able to pass through the dialysis membrane.

Draw a ring around the correct answer to complete the sentence.

The substance passed through because the

membrane was

impermeable.
partially permeable.

surrounded by capillaries.

(1)

- (b) For most patients, a kidney transplant is better than continued treatment using dialysis.

Kidney transplants have some disadvantages.

Give **two** disadvantages of kidney transplants.

1. _____

2. _____

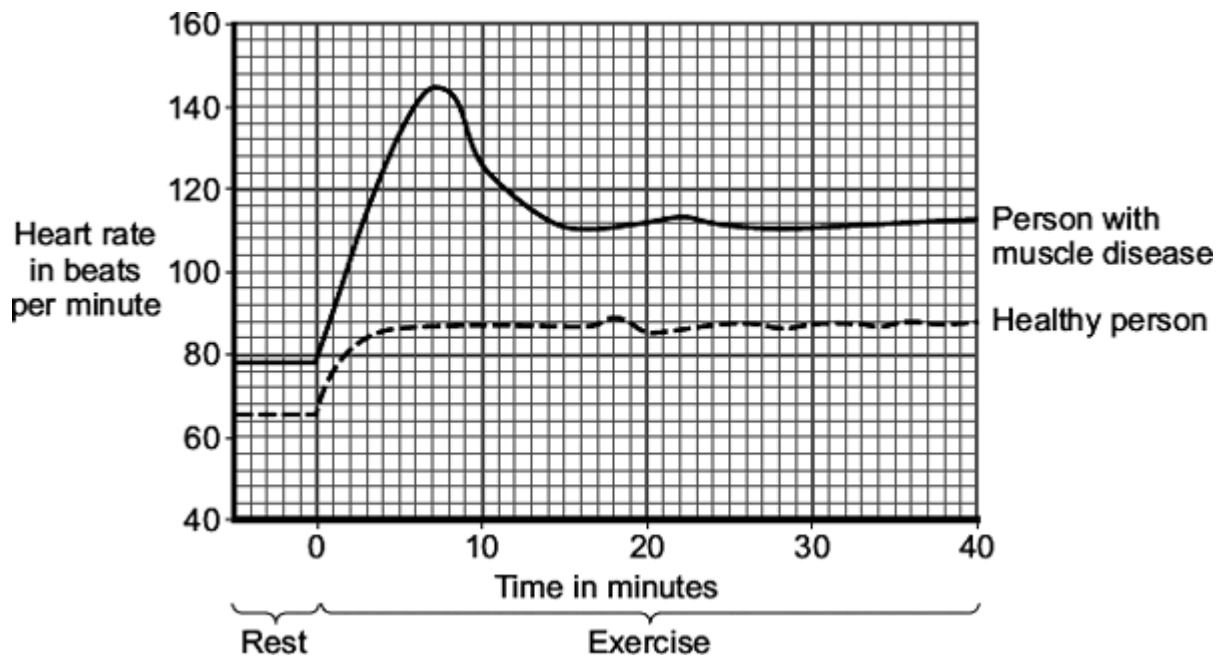
(2)

(Total 6 marks)

Q23.

Two people did the same amount of gentle exercise on an exercise cycle. One person had a muscle disease and the other had healthy muscles.

The graph shows the effect of the exercise on the heart rates of these two people.



- (a) Describe **three** ways in which the results for the person with the muscle disease are different from the results for the healthy person.

To gain full marks in this question you need to include data from the graph in your answer.

1. _____

2. _____

3. _____

(3)

(b) The blood transports glucose to the muscles at a faster rate during exercise than when a person is at rest.

(i) Name **one** other substance that the blood transports to the muscles at a faster rate during exercise.

(1)

(ii) People with the muscle disease are not able to store glycogen in their muscles.

The results shown in the graph for the person with the muscle disease are different from the results for the healthy person.

Suggest an explanation for the difference in the results.

(3)

(Total 7 marks)

Q24.

Use your knowledge of how the kidney works to answer the following questions.

(a) Blood plasma contains mineral ions, glucose, urea and proteins.

Explain why urine contains mineral ions and urea, but **no** glucose or protein.

(4)

- (b) A man ate and drank the same amounts of the same substances and he did the same amount of exercise on two different days. On one of the two days the weather was hot and on the other day the weather was cold.

The man's urine contained a higher concentration of mineral ions and urea on the hot day than on the cold day.

Explain why.

(4)

(Total 8 marks)

Q25.

Thalidomide is a drug that was developed in the 1950s. In the 1950s some pregnant women took thalidomide to prevent morning sickness during pregnancy.

Today, thalidomide is **not** used to prevent morning sickness.

- (a) (i) Give **one** medical use of thalidomide, today.

(1)

- (ii) Today, before a woman is given thalidomide, she is

- checked to see if she is pregnant
- told to use two different methods of contraception at the same time.

Give the reason why:

the woman is checked to see if she is pregnant

the woman is told to use two different methods of contraception at the same time

(2)

(b) The information is about two types of contraceptive pill used by women.

Combined pill

- contains two hormones
- is taken for 21 days, then no pills are taken for 7 days
- > 99 % effective at preventing pregnancy
- increases chance of headaches
- increases chance of breast cancer
- decreases chance of cancer of the ovary

Mini-pill

- contains one hormone
- must be taken at the same time every day
- < 99 % effective at preventing pregnancy
- increases chance of breast cancer

(i) Which **two** hormones does the combined pill contain?

Draw a ring around **two** answers.

LH **oestrogen** **progesterone** **FSH**

(2)

(ii) Give **two** advantages of taking the combined pill and **not** the mini-pill.

(2)

(iii) Give **one** advantage of taking the mini-pill and **not** the combined pill.

(1)

(Total 8 marks)

