

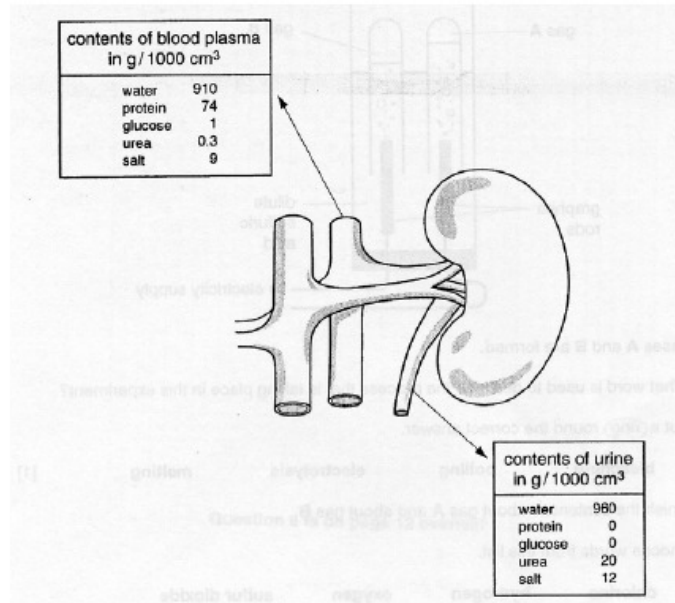
B4 Level Assessed task 2

1

Answer all questions.

1. The kidney filters blood and produces urine.

It helps to control the body's water content.



- (a) (i) Use the information in the diagram to decide which of the statements are correct.

Put ticks (✓) in the boxes next to the **two** correct statements.

There is less protein and more glucose in blood.

There is more urea and less glucose in urine.

There is less salt and less water in urine.

Blood is more concentrated than urine.

Urine and blood have the same concentration.

Urine is more concentrated than blood.

[2]

(ii) Suggest and explain what will happen to the concentration of urine if the air temperature increases.

Draw a straight line from each description of **what happens** to its **explanation**.

what happens	explanation
concentration increases	glucose is reabsorbed
concentration stays the same	concentration of the blood decreases
concentration decreases	water is lost by sweating

[1]

(b) (i) What is the name of the hormone that controls the concentration of urine?

.....[1]

(ii) The hormone is released when the brain detects that the blood is too concentrated.

Which part of the brain detects changes in the concentration of blood?

.....[1]

Which gland secretes the hormone?[1]

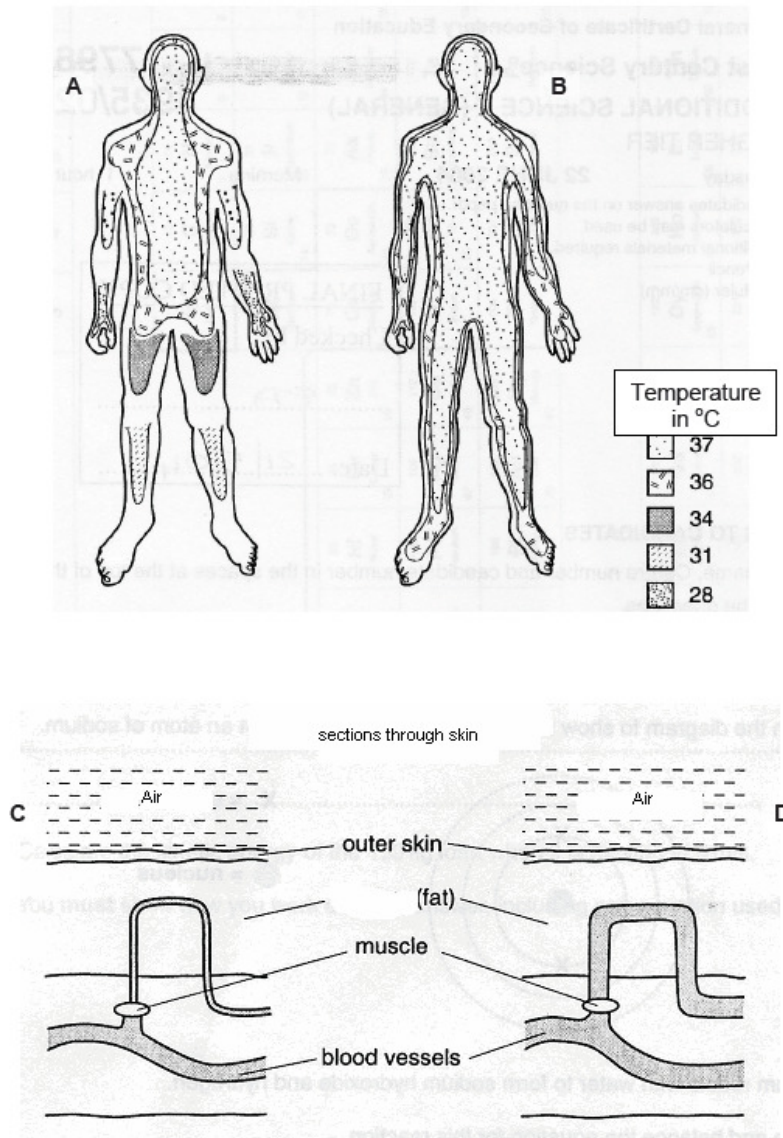
(c) Alcohol interferes with the control of water levels in the blood.

What effect does alcohol have on the concentration of the blood?

.....[1]

[Total: 7]

2. These diagrams show the temperature at different places in the body and sections through the skin in cold and warm conditions.



- (a) In which diagrams are the conditions warm? Write down the letters.

.....[1]

(b) (i) Finish the sentences by choosing the **best** words from the list.

- reduced**
- increased**
- unchanged**

In cold conditions blood vessels supplying blood to the capillaries have.....
diameters. This results inblood flow to the internal organs.
Hence..... heat loss taking place from the extremities. [1]

(ii) In cold conditions the skin sometimes has goose bumps.

What other change would be seen?

.....[1]

(c) What is the name given to the condition shown in diagram D?

.....[1]

[Total: 4]

3. (a) Cells absorb some substances by diffusion.

Which of the following statements **best** describes diffusion?

Put ticks (✓) in the **two** correct boxes.

Molecules move from high concentration to low concentration.

Molecules stay where they are.

Molecules move from low concentration to high concentration.

Molecules spread out randomly.

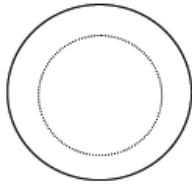
Molecules concentrate together randomly.

[2]

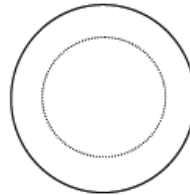
- (b) Osmosis is a special type of diffusion.

The diagram shows red blood cells in different solutions.

Draw an arrow (→) on each diagram to show in which direction the water will move.



red blood cell in pure water

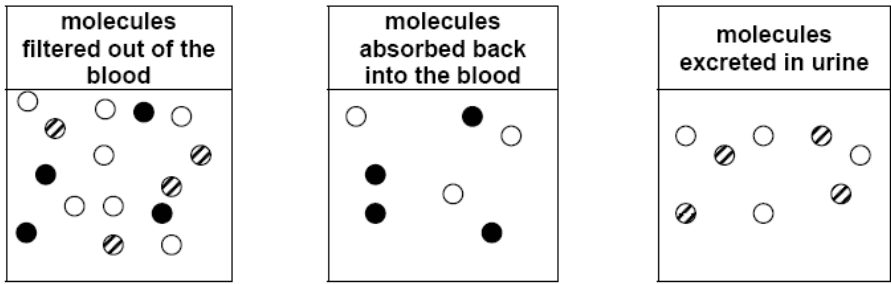


red blood cell in concentrated sugar solution

[1]

[Total: 3]

7 David draws three diagrams to show how kidneys work.



Some of the molecules are absorbed back into the blood and others are excreted in the urine.

(a) Complete the key for David's diagrams.

Choose from the list.

- sugar
- urea
- water

key	
●	=
○	=
⊘	=

[2]

(b) Where is urine stored in the human body?

Put a ring around the correct answer.

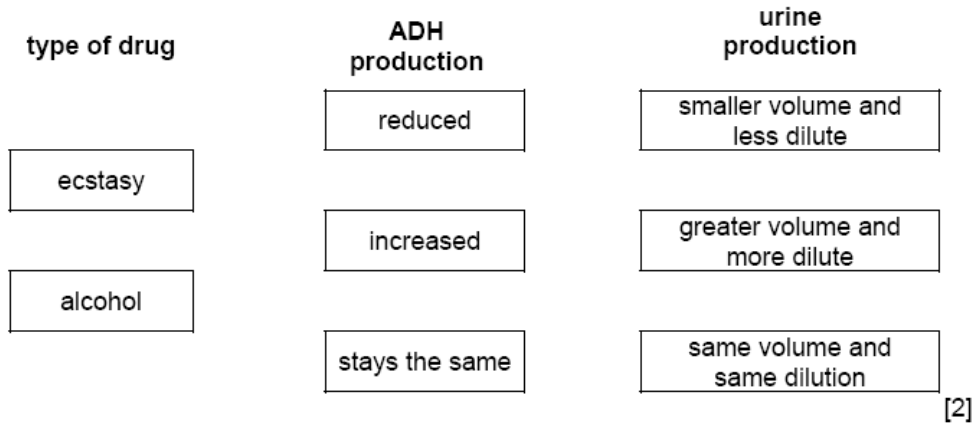
- bladder kidney liver

[1]

- (c) (i) Drugs can have a harmful effect on kidneys.

Complete the diagram to show the link between two different types of drug, ADH production and urine production.

Draw straight lines from each **type of drug** to its effect on **ADH production** and then to the effect on **urine production**.



- (ii) Which structure secretes ADH into the blood stream?

Put a ring around the correct structure.

hypothalamus

kidney

liver

pituitary gland

[1]

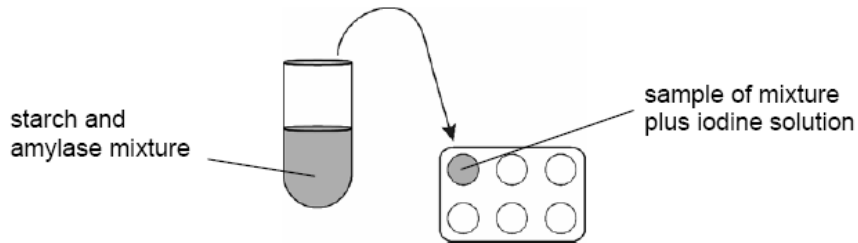
[Total: 6]

8 Jenny carries out an experiment to show the effect of temperature on the activity of the enzyme amylase.

She puts the same amounts of starch and amylase into three test tubes at three different temperatures.

The three temperatures are 20 °C, 40 °C and 60 °C.

After 5 minutes, Jenny takes a small sample of each mixture and adds a drop of iodine solution to test for starch.



Result of the experiment:

temperature °C	starch present	starch absent
20		✓
40		✓
60	✓	

(a) Jenny writes four different statements about her results.

Which of her statements are correct?

Put tick(s) (✓) next to the correct box or boxes.

- amylase works best at 60 °C
- amylase was denatured at 20 °C
- amylase was working at 20 °C and 40 °C
- the active site of amylase changes shape at 60 °C

[2]

(b) At which temperature is the rate of collisions between amylase and starch molecules the highest?

answer °C [1]

[Total: 3]

9 The automatic control of internal body temperature is important in humans.

Finish the sentences by choosing the **best** words from the list. You may use words more than once.

- decreases
- hypothalamus
- increases
- pituitary gland
- skin
- stay the same
- move
- vasodilate
- vasoconstrict

Changes in the blood temperature are detected by receptors in the

If the body core temperature is too high, the amount of sweat produced by the sweat glands

Such high temperatures also cause the blood vessels in the skin to

As a result of these processes, the body temperature lowers because the rate of heat loss

[3]

[Total: 3]