

**1. Alcohol reduces the release of ADH.**

Which statement describes the effect on urine from drinking alcohol?

- A** Concentrated urine with a higher volume
- B** Concentrated urine with a lower volume
- C** Diluted urine with a higher volume
- D** Diluted urine with a lower volume

Your answer

[1]

**2. Which statement describes how the body responds to cold temperatures?**

- A** Shivering and vasoconstriction
- B** Shivering and vasodilation
- C** Sweating and vasoconstriction
- D** Sweating and vasodilation

Your answer

[1]

**3. Most people have two kidneys.**

The two kidneys filter 200 litres of blood every day.

How much blood does **one** kidney filter per hour?

- A** 0.417 litres
- B** 8.33 litres
- C** 4170 millilitres
- D** 8333 millilitres

Your answer

[1]

**4(a).** Hormones are released when an athlete is preparing for and running a marathon.

Complete the sentences below to describe the hormones involved before and during the race.

Use the words from the list.

adrenaline	digestive	endocrine	glucagon	glucose
glycogen	insulin	nervous	thyroxine	

Before the race, the athlete's body needs to prepare for action. The body responds by

secreting the hormone .....

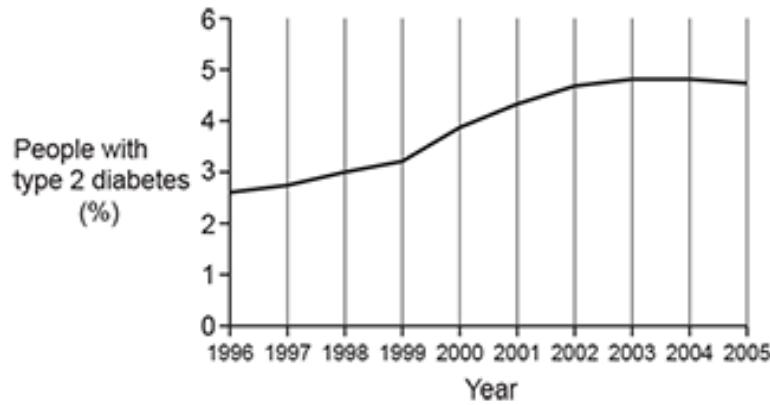
This hormone causes blood to be diverted from the ..... system to the muscles.

During the race, blood sugar levels will decrease, so another hormone called..... will be released.

This results in stores of ..... being used to maintain the blood sugar levels allowing the athlete to complete the marathon.

[4]

(b). The graph shows the percentage of people with type 2 diabetes between 1996 and 2005.



Suggest reasons for the changes in the percentage of people with type 2 diabetes shown in the graph.

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[3]

**5(a).** The colour of a person's urine changes depending on the concentration of their blood.

Complete the sentences below to describe why a person will have urine that is dark in colour.

Use the words in the list.

ADH	FSH	glucagon	hypothalamus
medulla	pituitary gland		

If a person has not consumed enough water, the concentration of the blood increases.

This is detected by receptors in the .....

These receptors send a message to the .....

This causes more ..... to be released into the bloodstream.

[3]

**(b).** Give **one** factor, other than lack of water intake, that could cause a person to have concentrated urine.

[1]

**(c).** Nephritis is a condition where part of the kidney tubule becomes inflamed. The result of this is that proteins can enter the tubule and pass out in the urine.

Describe a test that could be used to determine if a patient has nephritis.

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[2]

**6.** Amyloidosis is a group of inherited conditions that affect people's health.

The most common type of amyloidosis is caused by a dominant allele (**A**) of a gene.

Allele (**A**) codes for the production of a protein called amyloid.

Amyloid can block the blood vessels that leave the pancreas and the thyroid gland, preventing the release of hormones.

Complete the sentences to explain the symptoms that might be shown by person **2** in (a).

Symptoms of person **2** can include:

- Being unable to control blood ..... due to a lack of the hormones ..... and .....
- Being unable to ..... control rate due to a lack of the hormone .....

[4]

7. Hypothyroidism occurs when the body has an underactive thyroid gland.

In rare cases, hypothyroidism can lead to a condition called myxoedema coma. In this condition, the body's temperature falls below 35 °C and the person becomes hypothermic.

Explain why hypothermia is harmful to the body.

**END OF QUESTION PAPER**