

0 4

Homeostasis regulates the internal conditions of the human body.

0 4 . 1Which **two** processes are regulated by homeostasis?**[2 marks]**Tick (✓) **two** boxes.

Controlling water output in urine

Defending the body against pathogens

How quickly you walk

Keeping cool on a hot day

Waking up in the morning

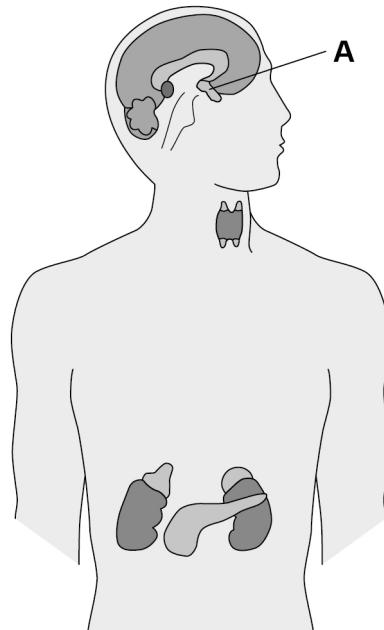


Hormones are produced by glands in the endocrine system.

Each hormone has an effect on a target organ.

Figure 6 shows glands of the endocrine system.

Figure 6



0 4 . 2 What is the name of gland **A**?

[1 mark]

Tick (✓) **one** box.

Pancreas

Pituitary

Thyroid

Question 4 continues on the next page

Turn over ►



Before eating a sugar-coated cereal a person had a blood glucose concentration of 5.2 mmol/dm^3

Soon after eating the cereal the person had a blood glucose concentration of 8.4 mmol/dm^3

0 4 . 3

Calculate the increase in the blood glucose concentration.

[1 mark]

Increase = _____ mmol/dm^3

0 4 . 4

The person needed medication to decrease their blood glucose concentration.

Suggest what disorder the person has.

[1 mark]

0 4 . 5

There is a problem with the hormone control of the person.

What is the problem?

[1 mark]

Tick (✓) **one** box.

The blood is not taking hormones to target organs.

The pancreas is not releasing insulin.

The pituitary gland is not being stimulated.



0 4 . 6

The person:

- works in an office
- drives to work
- is overweight
- watches the television and reads every night
- drinks a hot chocolate every night.

Suggest **two** lifestyle changes the person could make to help treat their disorder.**[2 marks]**1 _____
_____2 _____

8

Turn over for the next question**Turn over ►**

Question	Answers	Extra information	Mark	AO / Spec. Ref.
04.1	controlling water output in urine		1	AO2 4.5.1
	keeping cool on a hot day		1	
04.2	pituitary		1	AO1 4.5.3.1
04.3	(8.4 – 5.2 =) 3.2 (mmol/dm ³)		1	AO2 4.5.3.2
04.4	diabetes	ignore type of diabetes	1	AO3 4.5.3.2
04.5	the pancreas is not releasing insulin		1	AO3 4.5.3.2
04.6	change diet	allow description of suitable diet change e.g. use sweetener in hot chocolate, eat less sugary / starchy food or stop eating sugar-coated cereal	1	AO3 4.5.3.2
	take more exercise	allow description e.g. go to gym instead of reading and TV, walk / cycle to work allow change to an active job if no other marks awarded allow 1 mark for lose weight.	1	
Total			8	