

GCSE Biology

Worksheet: Human endocrine system

TIME 35 min	TOTAL 32 marks	CALCULATOR Allowed	DIFFICULTY Easy, Medium
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Topics: Human endocrine system

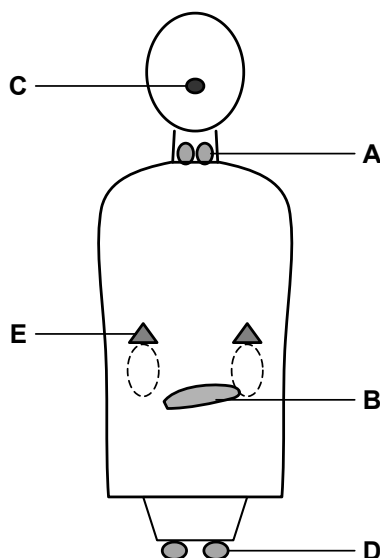
NAME _____ **CLASS** _____ **DATE** _____

- Use black ink or black ball-point pen. Pencil should only be used for drawing.
- Answer all questions in the spaces provided.
- In all calculations, show clearly how you work out your answer.
- The marks for questions are shown in brackets.

0 1

Figure 1 shows the positions of five endocrine glands in the body of a man.

Figure 1



0 1 . 1

Give the letter in Figure 1 that shows each gland.

Thyroid gland

Pancreas

Adrenal gland

[3 marks]

0 1 . 2

Gland D produces the hormone testosterone.
Name gland D.

.....

.....

.....

.....

[1 mark]

0 1 . 3

State one function of testosterone.

.....

.....

[1 mark]

0 1 . 4

Gland C is often called the 'master gland' because it releases hormones that control the activity of other endocrine glands.

What is the name of gland C?

Tick (✓) **one** box.

Adrenal gland

☐

Pancreas

☐

Pituitary gland

☐

Thyroid gland

☐

[1 mark]

0 2

The human body is coordinated by the nervous system and by the endocrine system.

0 2 . 1

What is a hormone?

Tick (✓) **one** box.

A cell that detects a change in the environment

☐

A chemical carried in the blood that affects a target organ

☐

An electrical impulse that travels along a neurone

☐

An enzyme that is secreted into the gut

☐

[1 mark]

0 2 . 2

Give **two** ways in which the effects of hormones are different from the effects of the nervous system.

.....

.....

.....

.....

[2 marks]

0 2 . 3

Where in the body is the pituitary gland?

Tick (✓) **one** box.

In the brain

☐

In the chest

☐

In the lower abdomen

☐

In the neck

☐

[1 mark]

0 2 . 4

The pituitary gland is sometimes called the ‘master gland’.
Explain why.

.....

.....

.....

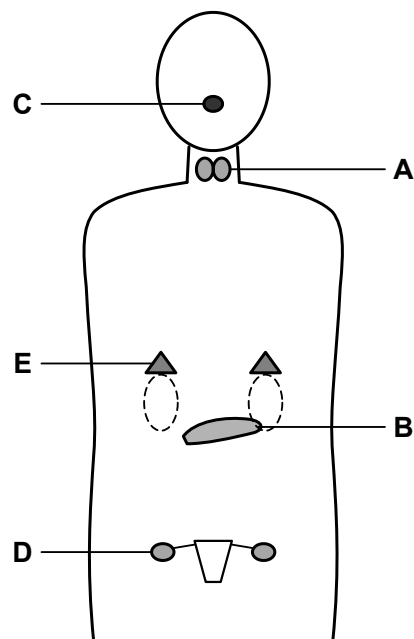
.....

[2 marks]

0 3

Figure 2 shows the positions of five endocrine glands in the body of a woman.

Figure 2



0 3 . 1

Give the letter in Figure 2 that shows each gland.

Pancreas

Thyroid gland

Adrenal gland

[3 marks]

0 3 . 2

Gland D produces the hormone oestrogen.

Name gland D.

.....

.....

.....

[1 mark]

0 3 . 3

How are hormones carried from an endocrine gland to their target organ?

.....

.....

[1 mark]

0 3 . 4

Gland C is often called the ‘master gland’.
What is the name of gland C?

Tick (✓) **one** box.

Adrenal gland

☐

Pancreas

☐

Pituitary gland

☐

Thyroid gland

☐

[1 mark]

0 4

Table 1 shows information about four responses in the human body.

Table 1

Response	Time taken for the response to start	How long the response lasts
P	0.3 seconds	1 second
Q	20 minutes	4 hours
R	0.5 seconds	2 seconds
S	several months	many years

0 4 . 1

Which **two** responses in Table 1 are most likely to be controlled by hormones?
Give a reason for your answer.

.....

.....

.....

.....

[2 marks]

0 4 . 2

Explain why responses controlled by hormones take longer to start than responses controlled by the nervous system.

.....

.....

.....

.....

[2 marks]

0 4 . 3

Describe what an endocrine gland does.

.....

.....

[1 mark]

0 5

Melatonin is a hormone made by the pineal gland, a small endocrine gland in the brain. More melatonin is released when it gets dark, and melatonin makes a person feel sleepy.

0 5 . 1

Describe how melatonin gets from the pineal gland to the organs that it affects.

.....

.....

.....

.....

[2 marks]

0 5 . 2

A person wakes up in the night and switches on a bright light. The pineal gland stops releasing melatonin, but the person still feels sleepy for some time. Suggest why.

.....

.....

.....

.....

[2 marks]

0 5 . 3

Melatonin affects several different organs, even though it is released by one small gland.
Suggest why.

[1 mark]

0 6

A student wrote the following description of the endocrine system:

‘Hormones are electrical signals that travel along neurones to every organ in the body, where they have an effect.’

This description contains three mistakes.

0 6 . 1

Identify the **three** mistakes in the student’s description, and write a correct statement for each.

[3 marks]

0 6 . 2

Suggest **one** advantage to the body of a hormone affecting only its target organs, rather than every organ.

[1 mark]

END OF QUESTIONS

Original practice questions written to match the specification. Not produced by, affiliated with or endorsed by AQA.

Mark scheme

GCSE Biology · Worksheet: Human endocrine system · 32 marks

Question 1 (6 marks)

01.1 [3 marks]

Answer: Thyroid gland A; pancreas B; adrenal gland E

- thyroid gland: A (1)
 - pancreas: B (1)
 - adrenal gland: E (1)
-

01.2 [1 mark]

Answer: Testis / testes

- testis / testes (1)

Notes: Allow testicle(s). Do not accept scrotum or penis.

01.3 [1 mark]

- stimulates sperm production (in the testes) / brings about male secondary sexual characteristics at puberty, e.g. facial hair, a deeper voice, increased muscle mass (1)
-

01.4 [1 mark]

Correct: Pituitary gland

Question 2 (6 marks)

02.1 [1 mark]

Correct: A chemical carried in the blood that affects a target organ

02.2 [2 marks]

Answer: Hormones act more slowly; their effects last longer

- (hormones are) slower to act / take longer to produce an effect (1)
- (hormone) effects last longer (1)

Notes: Allow the converse for the nervous system, e.g. 'nerves act faster'. Allow 'hormones affect a wider area / several organs'.

02.3 [1 mark]

Correct: In the brain

02.4 [2 marks]

Answer: It secretes several hormones that act on other glands and cause them to release their own hormones

- it secretes (several) hormones (into the blood) (1)
 - (these hormones) act on / stimulate other (endocrine) glands to release hormones (1)
-

Question 3 (6 marks)

03.1 [3 marks]

Answer: Pancreas B; thyroid gland A; adrenal gland E

- pancreas: B (1)
 - thyroid gland: A (1)
 - adrenal gland: E (1)
-

03.2 [1 mark]

Answer: Ovary

- ovary / ovaries (1)
-

03.3 [1 mark]

Answer: In the blood (bloodstream / plasma)

- in the blood / bloodstream / plasma (1)

Notes: Do not accept 'along nerves' or 'in neurones'.

03.4 [1 mark]

Correct: Pituitary gland

Question 4 (5 marks)

04.1 [2 marks]

Answer: Q and S; they take longer to start and last longer

- Q and S (1)
- they take longer to start / they last longer (than P and R) (1)

Notes: Both letters needed for the first mark. For the second mark a reason based on either the time taken to start or how long the response lasts is enough.

04.2 [2 marks]

Answer: Hormones are carried in the blood, which is slower than electrical impulses travelling along neurones

- hormones are carried (to the target organ) in the blood (1)
- (which is slower than) electrical impulses travelling along neurones (1)

04.3 [1 mark]

Answer: It secretes hormones directly into the bloodstream

- secretes / releases hormones (directly) into the blood(stream) (1)

Question 5 (5 marks)

05.1 [2 marks]

Answer: It is secreted directly into the blood, which carries it to its target organs

- it is secreted / released directly into the blood(stream) (1)
- it is carried (around the body) in the blood to its target organs (1)

05.2 [2 marks]

Answer: The melatonin already released stays in the blood until it is broken down, so it keeps acting on its target organs; the effects of hormones last longer than those of nerve impulses

- the melatonin already released remains in the blood for some time (until it is broken down / removed) (1)
- so it continues to act on its target organs (the effects of hormones last longer than those of nerve impulses) (1)

05.3 [1 mark]

Answer: It is carried all around the body in the blood, and several organs have cells that respond to it

- it is carried all around the body in the blood, and cells in several organs are able to respond to it (it has several target organs) (1)

Question 6 (4 marks)

06.1 [3 marks]

Answer: Hormones are chemical messengers, not electrical signals; they travel in the blood, not along neurones; they only affect target organs, not every organ

- hormones are chemical messengers, not electrical signals (1)
- hormones travel in the blood(stream), not along neurones (1)
- hormones only affect target organs, not every organ in the body (1)

06.2 [1 mark]

Answer: Different organs can be given different instructions at the same time, so responses can be precisely controlled

- different organs can be given different instructions (at the same time) / effects can be controlled more precisely / other organs are not needlessly affected (1)
-