

GCSE BIOLOGY

Biology Test 3: Homeostasis and response (Higher)

Total number of marks: 37

0 9 Many human actions are reflexes.

0 9 . 1 Which **two** of the following are examples of reflex actions?

[2 marks]

Tick **two** boxes.

Jumping in the air to catch a ball

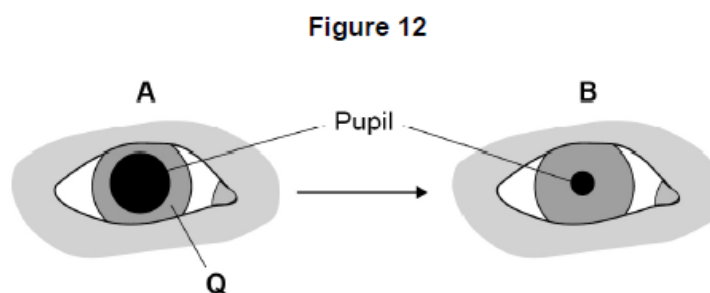
Raising a hand to protect the eyes in bright light

Releasing saliva when food enters the mouth

Running away from danger

Withdrawing the hand from a sharp object

Figure 12 shows how the size of the pupil of the human eye can change by reflex action.



0 9 . 2 Name **one** stimulus that would cause the pupil to change in size from **A** to **B**, as shown in **Figure 12**.

[1 mark]

0 9 . 3 Structure **Q** causes the change in size of the pupil.

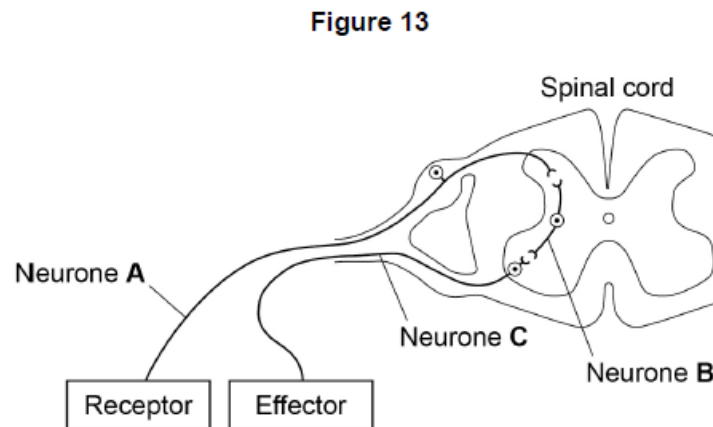
Name structure **Q**.

[1 mark]

0 9 . 4 Describe how structure **Q** causes the change in the size of the pupil from **A** to **B**.

[1 mark]

0 9 . 5 **Figure 13** shows some structures involved in the coordination of a reflex action.



Describe how the structures shown in **Figure 13** help to coordinate a reflex action.

[6 marks]

0	3
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This question is about plant hormones.

0	3	1
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Farmers can spray seeds with gibberellins to start germination.

What are **two** other uses of gibberellins?

[2 marks]

Tick (✓) **two** boxes.

To help in tissue culture

To help roots form

To increase fruit size

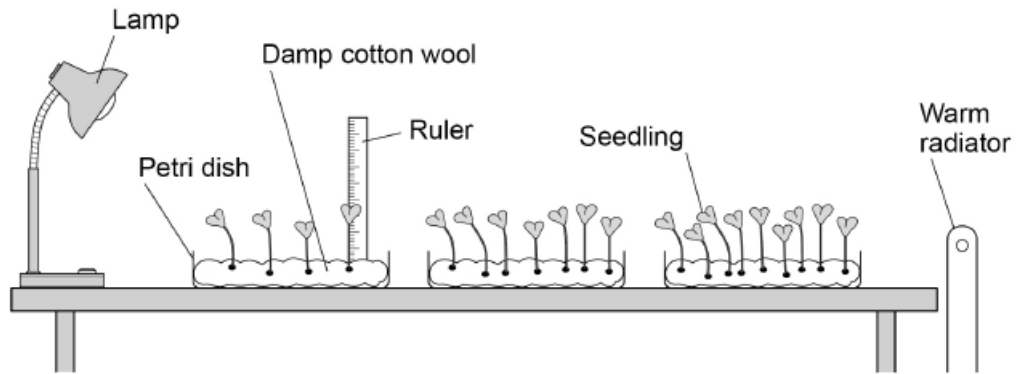
To kill weeds

To promote flower production

Students investigated the effect of light intensity on the height of seedlings.

Figure 3 shows the equipment.

Figure 3



0 3 . 2 Describe **two** improvements the students should make to their investigation.

[2 marks]

1 _____

2 _____

Figure 4 shows a seedling growing towards a lamp.

Figure 4



0 3 . 3 Suggest how the students measured the length of the curved seedling in **Figure 4**.
[1 mark]

0 3 . 4 Explain what happened to the growth of the seedling on side **Q** compared with the growth on side **P**.
[3 marks]

0 3 . 5 Bananas are often stored separately from other fruits because bananas release a plant hormone.

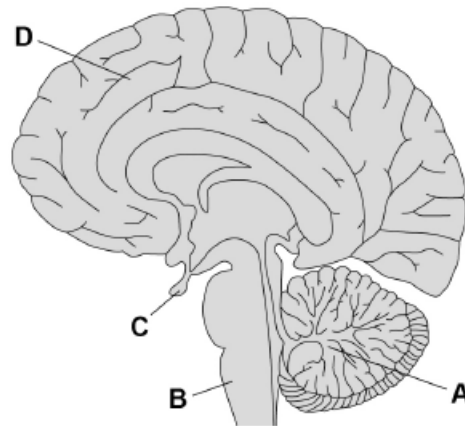
Why does storing bananas with other fruits cause the other fruits to ripen faster?

[1 mark]

0 6

Figure 7 shows the brain.

Figure 7



0 6

1

Which part of the brain becomes more active if a person balances on one leg instead of standing on two legs?

[1 mark]

Tick (✓) **one** box.

A B C D

0 6

2

Name the part of the brain that is responsible for making a decision.

[1 mark]

0 6

3

In most MRI scanners the person being scanned needs to stay completely still.

A functional MRI (fMRI) scanner allows a person to move while the scanner makes images of the person's brain activity.

Suggest how the fMRI scanner could help to find out more about the brain damage a person has.

[3 marks]

0 6

4

Describe how the brain receives information about light entering the eye.

You should include the names of structures in your answer.

[3 marks]

0 6 Water conservation is important to the human body.

0 6 . 1 Which gland releases the hormone that controls water loss from the body?

[1 mark]

Tick (✓) **one** box.

Adrenal

Pancreas

Pituitary

Thyroid

0 6 . 2 Which hormone helps the kidneys to control water loss from the body?

[1 mark]

Tick (✓) **one** box.

ADH

Adrenaline

LH

Thyroxine

0 6 . 3 A man is walking across a desert.

The man has used up his supply of drinking water.

Explain how the gland you named in Question **06.1** and the kidneys reduce water loss.

[3 marks]

0 6 . 4 Some people have kidney failure.

Doctors may treat patients with kidney failure by either:

- dialysis
- a kidney transplant.

Explain **two** biological reasons why most doctors think that a kidney transplant is a better method of treatment than dialysis.

Do **not** refer to cost or convenience.

[4 marks]

Reason 1 _____

Reason 2 _____
