

0 1

Many human actions are reflexes.

0 1 . 1

Which **two** of the following are examples of reflex actions?

[2 marks]

Tick **two** boxes.

Jumping in the air to catch a ball

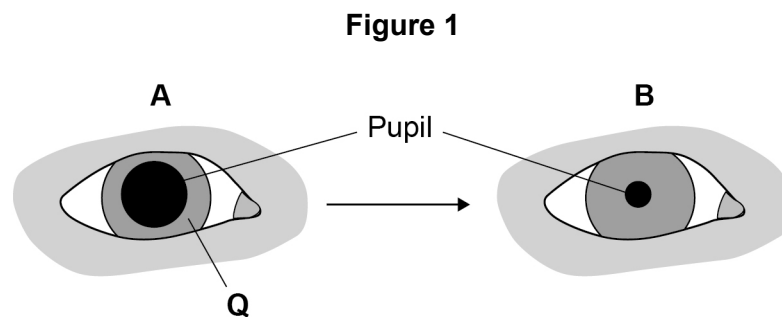
Raising a hand to protect the eyes in bright light

Releasing saliva when food enters the mouth

Running away from danger

Withdrawing the hand from a sharp object

Figure 1 shows how the size of the pupil of the human eye can change by reflex action.



0 1 . 2

Name **one** stimulus that would cause the pupil to change in size from **A** to **B**, as shown in **Figure 1**.

[1 mark]



0 1 . 3 Structure **Q** causes the change in size of the pupil.

Name structure **Q**.

[1 mark]

0 1 . 4 Describe how structure **Q** causes the change in the size of the pupil from **A** to **B**.

[1 mark]

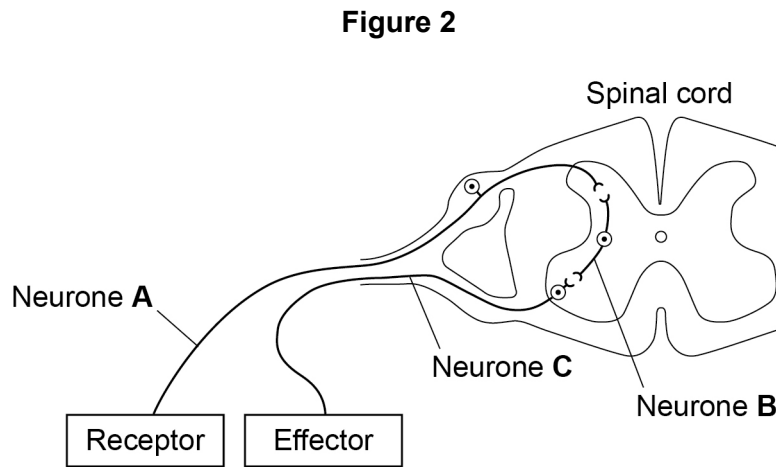
Question 1 continues on the next page

Turn over ►



0 1 . 5

Figure 2 shows some structures involved in the coordination of a reflex action.



Describe how the structures shown in **Figure 2** help to coordinate a reflex action.

[6 marks]



Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.1	releasing saliva when food enters the mouth		1	AO2 4.5.2.1
	withdrawing the hand from a sharp object		1	
01.2	bright light	allow described method of increasing light ignore light unqualified allow correctly named drug eg morphine / heroin	1	AO1 4.5.2.3
01.3	iris		1	AO1 4.5.2.3
01.4	muscle contraction	allow muscles shorten ignore radial / circular ignore muscles relax / constrict do not accept muscles expand do not accept ciliary muscle contracts	1	AO1 4.5.2.3

Question	Answers	Mark	AO / Spec. Ref.
01.5	Level 2: Scientifically relevant facts, events or processes are identified and given in detail to form an accurate account.	4–6	AO1 4.5.2.1
	Level 1: Facts, events or processes are identified and simply stated but their relevance is not clear.	1–3	
	No relevant content	0	
	Indicative content <ul style="list-style-type: none"> • receptor detects stimulus • eg receptor detects pressure • receptor generates impulses / electrical signals • neurones conduct impulses / electrical signals • neurone A conducts impulses to spinal cord • neurone A = sensory neurone • synapse between neurones • chemical (/ neurotransmitter) crosses synapse • chemical stimulates impulse(s) in neurone B • neurone B = relay neurone • neurone C = motor neurone • effector carries out response • eg muscles of the arm / leg contract • muscles contract or gland secretes chemicals <p>to access level 2, candidates need to consider, in terms of the indicative content, the receptor, the neurones and the effector in the correct sequence</p>		
Total			11