

Nervous System 2

Q:1 The photograph shows a new-born baby.



(a) New-born babies have reflex actions. The reflex actions help new-born babies to survive.

Draw a line from each reflex action to the way in which it helps the baby to survive.

Reflex action	How the reflex action helps the baby
If milk goes down the baby's windpipe the baby coughs.	Helps the baby to hold on to the mother
If the mother touches the palm of the baby's hand, the baby clenches its fist.	Prevents the baby from choking
If the mother strokes the baby's mouth, the baby begins to suck.	Helps to protect some of the baby's receptors
If a bright light shines on the baby, the baby's eyes shut.	Helps the baby to crawl
	Helps the baby to feed

(4 mar

(b) Which two of the following may be effectors in reflex actions?

Tick (☑) two boxes.

Brain

Glands

Motor neurones

Muscles

Sensory neurones

(2 marks)

Q:2 The nervous system allows humans to react to their surroundings.

(a) Sense organs have receptors. Receptors detect changes in the environment. Which word describes a change in the environment?

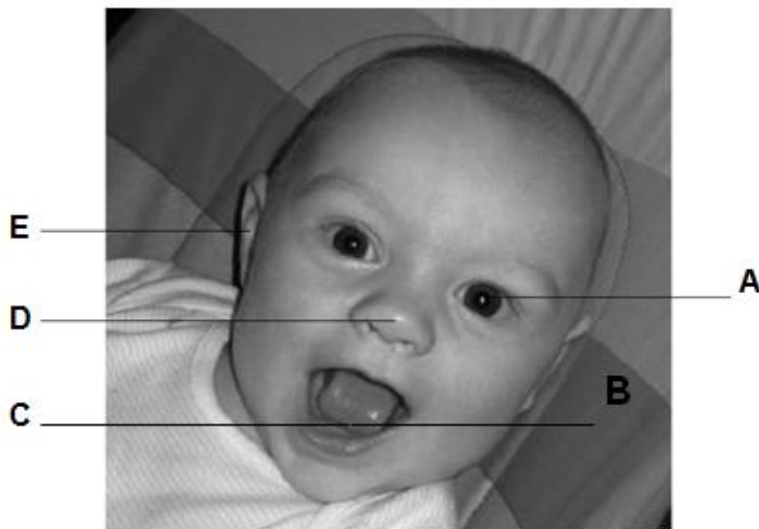
Draw a ring around one answer.

an effector a neurone a stimulus

(1 mark)

(b) The photograph shows a baby.

Labels A, B, C, D and E show some of the baby's sense organs.



Answer each question by writing one letter, A, B, C, D or E, in each box.

(b) (i) Which sense organ has receptors sensitive to light?

(1 mark)

(b) (ii) Which two sense organs have receptors sensitive to chemicals?

 And

(2 marks)

(b) (iii) Which sense organ has receptors sensitive to changes in the baby's position?

(1 mark)

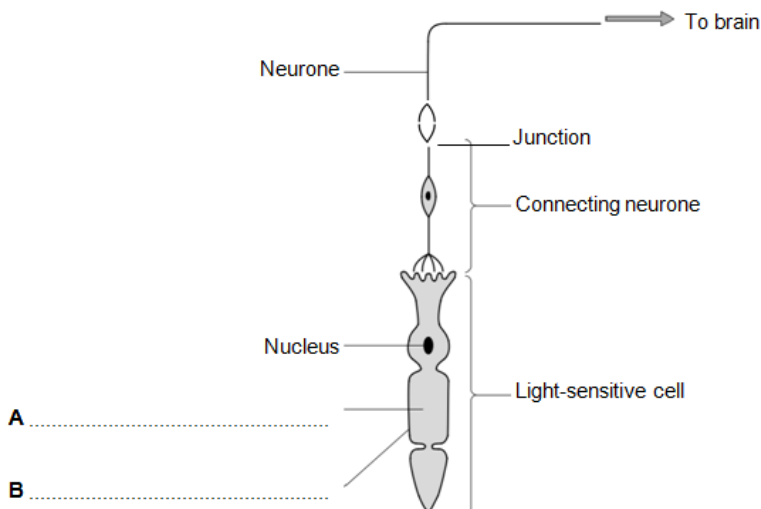
(c) Information from sense organ A is passed along nerve cells.

The information is coordinated to produce a response.

Which organ in the body coordinates the information?

(1 mark)

Q:3 Diagram 1 shows cells from the light-sensitive layer in the eye.



(a) On Diagram 1, add labels to name part A and part B of the light-sensitive cell.

(2 marks)

(b) There is a junction between the connecting neurone and the neurone carrying the impulse to the brain.

(b) (i) What name is given to the junction?

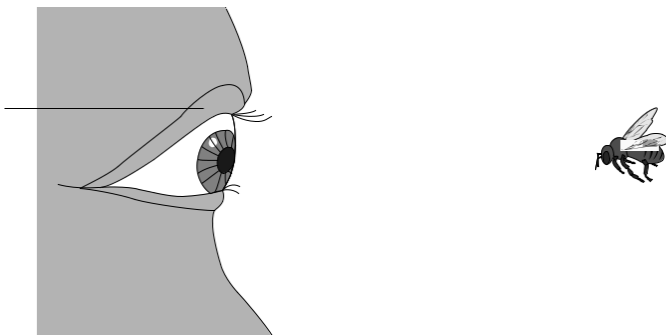
(1 mark)

(b) (ii) In what form is information passed across the junction?

(1 mark)

(c) Diagram 2 shows a bee flying towards a man's eye.

Diagram 2



In the blink reflex, light from the bee reaches the light-sensitive cell in the eye.

The muscles in the eyelid shut the man's eye before the bee hits the eye.

Describe the pathway taken by the nerve impulse in the blink reflex.

(a) What type of neurone is neurone X?

Draw a ring around the correct answer.

motor neurone relay neurone sensory neurone

[1 mark]

(b) There is a gap between neurone X and neurone Y.

(b) (i) What word is used to describe a gap between two neurones?

Draw a ring around the correct answer.

effector receptor synapse

[1 mark]

(b) (ii) Draw a ring around the correct answer to complete the sentence.

Information passes across the gap as

a chemical.
an electrical impulse.
pressure.

[1 mark]

(c) Describe what happens to the muscle when it receives an impulse from neurone Z. How does this reflex action help the body?

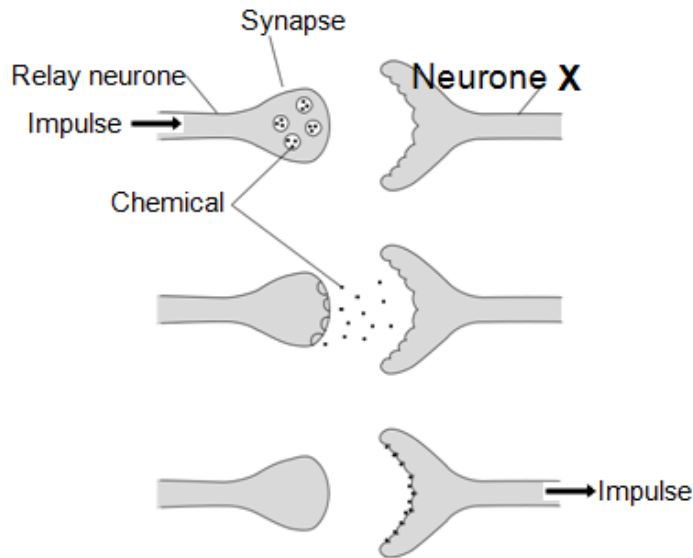
What happens to the muscle _____

How this helps the body _____

[2 marks]

Q:5 Figure 3 shows how a nerve impulse passing along a relay neurone causes an impulse to be sent along another type of neurone, neurone X.

Figure 3



(a) What type of neurone is neurone X?

[1 mark]

(b) Describe how information passes from the relay neurone to neurone X.

Use Figure 3 to help you.

[3 marks]

(c) Scientists investigated the effect of two toxins on the way in which information passes across synapses. Table 2 shows the results.

Table 2

Toxin	Effect at the synapse
Curare	Decreases the effect of the chemical on neurone X
Strychnine	Increases the amount of the chemical made in the relay neurone

Describe the effect of each of the toxins on the response by muscles.

Curare _____

Strychnine _____

[2 marks]

Q:6 This question is about the nervous system.

(a) Describe the function of receptors in the skin.

[2 marks]

(b) A response is caused when information in the nervous system reaches an effector.

(b) (i) There are two different types of effector.

Complete Table 4 to show:

- ☐ the two different types of effector
- ☐ the response each type of effector makes.

Table 4

Type of effector	Response the effector makes
1
2

[4 marks]

(b) (ii) Some effectors help to control body temperature.

Give one reason why it is important to control body temperature.

[1 mark]

Q:7 Humans use the nervous system to react to changes in the environment.

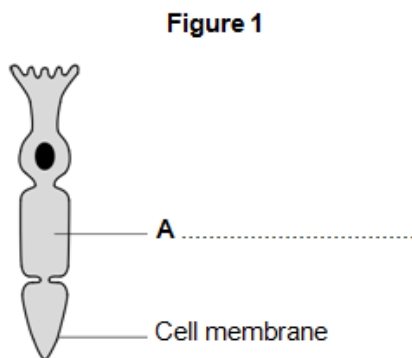
(a) (i) Which word means a change in the environment?

Draw a ring around the correct answer.

neurone reflex stimulus

[1 mark]

(a) (ii) Figure 1 shows a light receptor cell.



Use the correct answer from the box to label part A on Figure 1.

chloroplast cytoplasm vacuole

[1 mark]

(b) Figure 2 shows a boy riding a bicycle on a sunny day.

Figure 2



(b) (i) Receptors in the boy's body detect changes in the environment.

Complete Table 1 to show which organ of the body contains the receptors for each change in the environment.

Table 1

Change in the environment	Organ that contains the receptors
Sound of traffic from behind him	
Flashing blue lights of a police car	
Cooler air temperature in the shadows	

[3 marks]

(b) (ii) The boy's response to danger is to pull on the bicycle brakes. Which type of effector causes this response?

Tick (☑) one box.

A gland

A muscle

A synapse

[3 marks]

TOTAL MARKS=44