

Coordination and response – 2021 IGCSE 0610

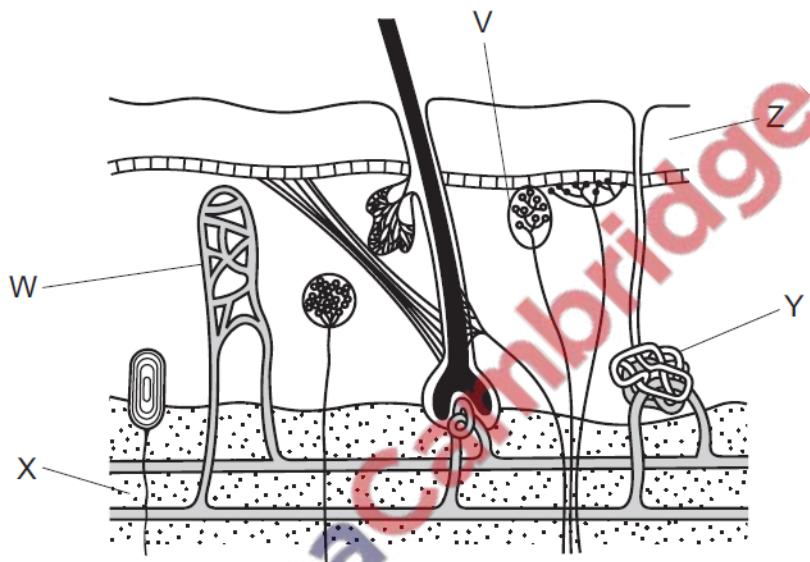
1. March/2021/Paper_12/No.25

Sensory neurones conduct impulses from

- A the brain and spinal cord to muscles.
- B one sense organ to another sense organ.
- C sense organs to the brain and spinal cord.
- D sense organs to muscles.

2. March/2021/Paper_12/No.26

The diagram shows a section through human skin.

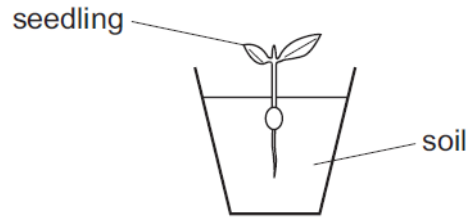


Which row matches the labelled part to its function?

	insulation	sensing temperature	sweat production
A	Y	W	Z
B	Y	V	X
C	X	W	Z
D	X	V	Y

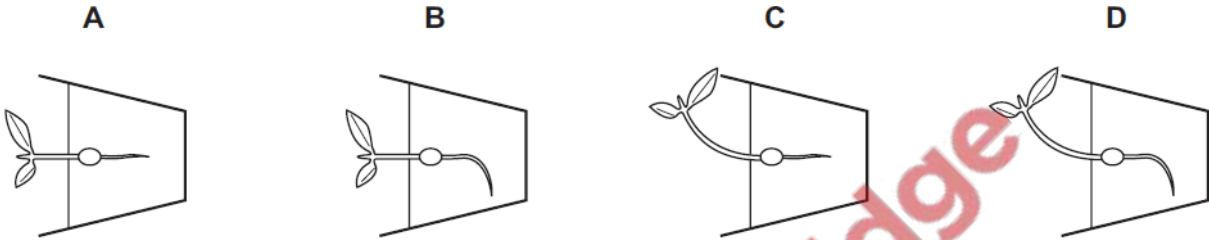
3. **March/2021/Paper_12/No.27**

The diagram shows a seedling growing in a pot in the light.



The pot was then placed on its side in a dark room.

What will be the appearance of the seedling after 48 hours?



4. **March/2021/Paper_22/No.25**

What is a function of a synapse?

- A to allow impulses to travel in both directions
- B to ensure impulses travel in one direction
- C to release vesicles into the synaptic gap
- D to transport neurotransmitters by osmosis



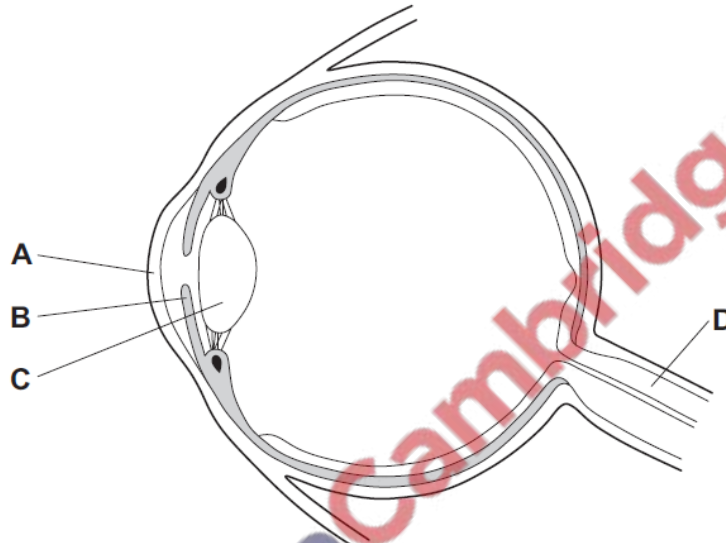
5. June/2021/Paper_11/No.26

What is the sequence of neurones connecting a receptor to an effector in a reflex arc?

- A motor → relay → sensory
- B motor → sensory → relay
- C sensory → motor → relay
- D sensory → relay → motor

6. June/2021/Paper_11/No.27

What controls how much light enters the eye?



7. June/2021/Paper_11/No.28

Which row matches each hormone to its function?

	causes the growth of facial hair	reduces blood glucose concentration	repairs the lining of the uterus	widens the pupils
A	oestrogen	insulin	testosterone	adrenaline
B	oestrogen	insulin	insulin	testosterone
C	testosterone	adrenaline	insulin	oestrogen
D	testosterone	insulin	oestrogen	adrenaline

8. June/2021/Paper_12/No.23

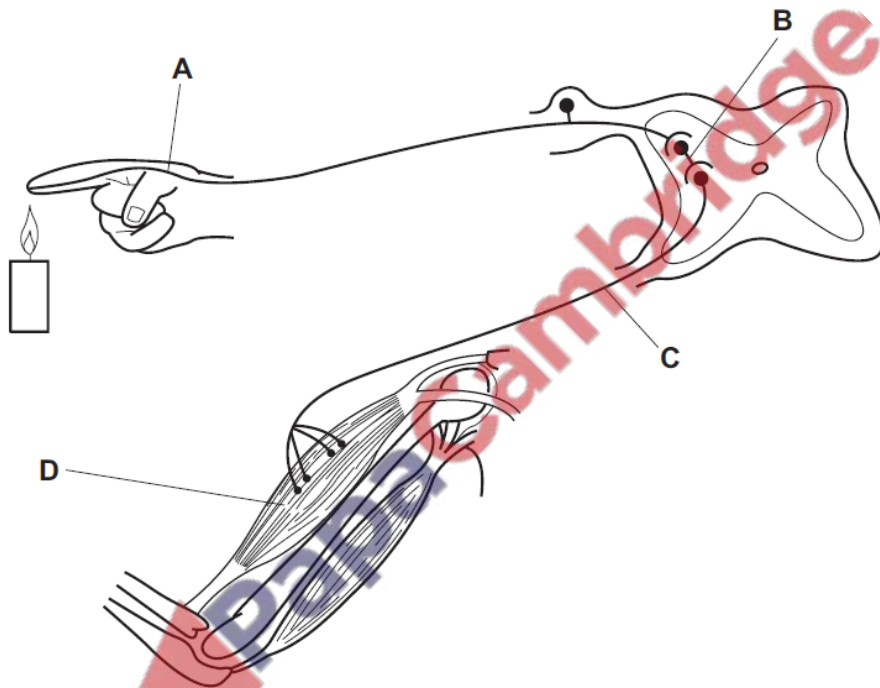
What is the link between muscle contraction, protein synthesis and the maintenance of a constant body temperature?

- A They are controlled by hormones.
- B They are examples of homeostasis.
- C They require energy.
- D They require carbon dioxide.

9. June/2021/Paper_12/No.26

The diagram shows a reflex arc.

Which labelled part is the effector?



10. June/2021/Paper_12/No.27

A person's iris is damaged.

What is the effect of this?

- A Nerve impulses from the eye cannot reach the brain.
- B The person cannot control how much light enters the eye.
- C The person cannot focus light onto the retina.
- D Receptors do not produce nerve impulses in response to light.

11. June/2021/Paper_12/No.28

Which hormone is secreted by the pancreas?

- A adrenaline
- B insulin
- C oestrogen
- D testosterone

12. June/2021/Paper_13/No.26

A student's eyes blinked as a ball flew past their head. This is a reflex action.

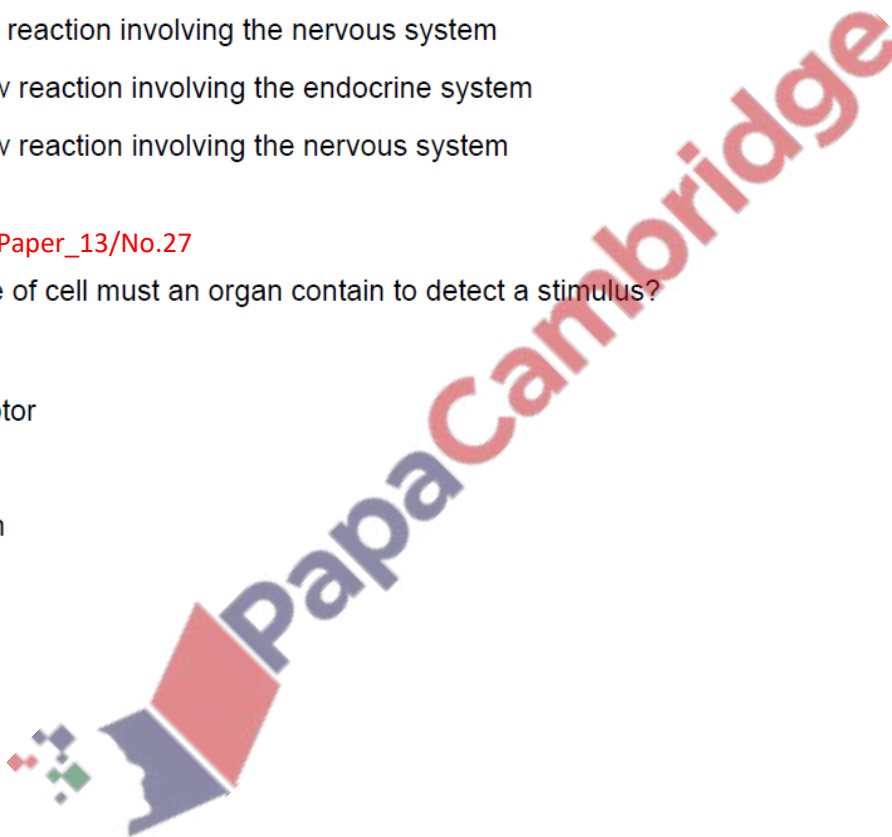
Which row describes the reaction shown by the student?

- A a fast reaction involving the endocrine system
- B a fast reaction involving the nervous system
- C a slow reaction involving the endocrine system
- D a slow reaction involving the nervous system

13. June/2021/Paper_13/No.27

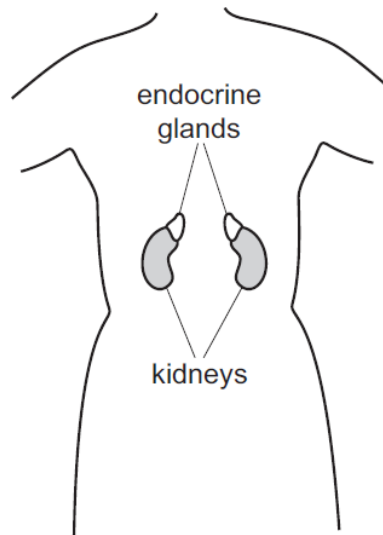
What type of cell must an organ contain to detect a stimulus?

- A blood
- B receptor
- C skin
- D xylem



14. June/2021/Paper_13/No.28

The diagram shows the position of the kidneys in a human. Each kidney has an endocrine gland above it.



Which glands are shown?

- A adrenal glands
- B ovaries
- C pancreas
- D testes

15. June/2021/Paper_13/No.32

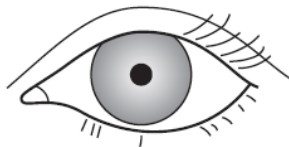
Changes occur in a boy's body at puberty: his height increases, more muscle develops and body hair grows.

Which hormone stimulates these changes?

- A adrenaline
- B insulin
- C oestrogen
- D testosterone

16. June/2021/Paper_21/No.26

The diagram shows the appearance of an eye when in bright light.



bright light

Which row gives the correct states of the iris muscles in bright light?

	radial muscles	circular muscles
A	contracted	contracted
B	contracted	relaxed
C	relaxed	contracted
D	relaxed	relaxed

17. June/2021/Paper_21/No.27

What is the effect of adrenaline on pulse rate and blood glucose concentration?

	pulse rate	blood glucose
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

18. June/2021/Paper_21/No.28

Which statements about auxin are correct?

- 1 Auxin is made in all cells in plants.
- 2 Auxin causes cells to elongate.
- 3 Auxin moves between the cells by osmosis.
- 4 Auxin is unequally distributed.

A 1 and 3

B 1 and 4

C 2 and 3

D 2 and 4

19. June/2021/Paper_22/No.23

What is the link between muscle contraction, protein synthesis and the maintenance of a constant body temperature?

- A They are controlled by hormones.
- B They are examples of homeostasis.
- C They require energy.
- D They require carbon dioxide.

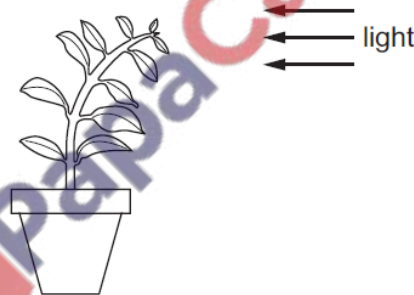
20. June/2021/Paper_22/No.26

What is the result of the release of adrenaline?

	blood glucose concentration	breathing rate
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

21. June/2021/Paper_22/No.28

The diagram shows a plant next to a window.



Which statement explains the plant shoot's growth?

- A There is a higher concentration of auxin in the cells on the shaded side of the shoot. This prevents cell elongation.
- B There is a higher concentration of auxin in the cells on the shaded side of the shoot. This stimulates cell elongation.
- C There is a lower concentration of auxin in the cells on the shaded side of the shoot. This prevents cell elongation.
- D There is a lower concentration of auxin in the cells on the shaded side of the shoot. This stimulates cell elongation.

22. June/2021/Paper_23/No.26

Which row shows the levels of organisation for structures associated with the eye?

	cell	tissue	organ	organ system
A	cone	fovea	endocrine	eye
B	rod	retina	eye	nervous
C	antibody	muscle	artery	circulatory
D	lymphocyte	capillary	vein	sensory

23. June/2021/Paper_23/No.27

Which row correctly compares hormonal control with nervous control?

	speed of action of hormonal control	how long the effects of the hormone lasts
A	rapid	short
B	slow	long
C	rapid	long
D	slow	short

24. June/2021/Paper_23/No.28

Which statement about the regulation of human body temperature is correct?

- A Vasoconstriction of skin arterioles occurs when the body temperature is too low.
- B Vasodilation of skin arterioles occurs when the body temperature is too low.
- C Vasoconstriction of skin capillaries occurs when the body temperature is too high.
- D Vasodilation of skin capillaries occurs when the body temperature is too low.

25. June/2021/Paper_23/No.29

Why are people advised not to drive a car after drinking an excessive quantity of alcohol?

- A Alcohol is a depressant.
- B Alcohol is a stimulant.
- C Alcohol decreases reaction time.
- D Alcohol is addictive.

Fig. 4.1 shows part of the human nervous system.

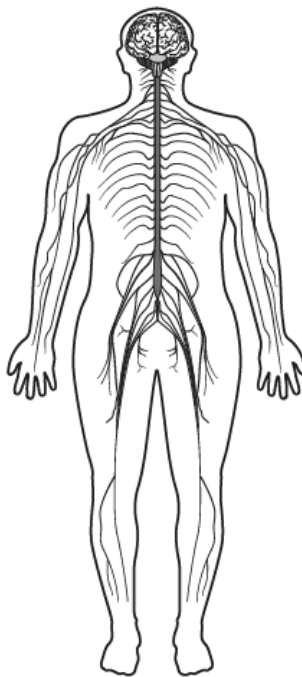


Fig. 4.1

(a) (i) State the **two** parts of the central nervous system.

1

2

[2]

(ii) Describe the main function of the nervous system.

.....

.....

..... [1]

(b) Fig. 4.2 shows three different types of neurone.

These cells are used in some reflex actions.

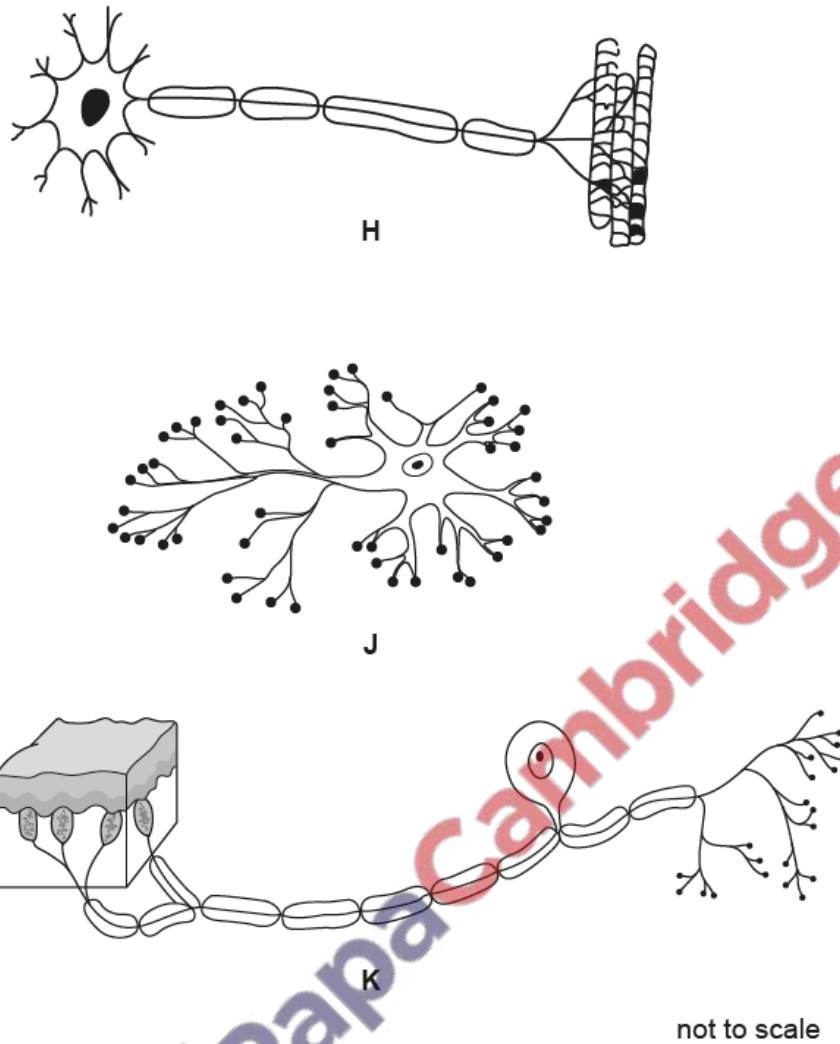


Fig. 4.2

(i) State the names of cells H and K in Fig. 4.2.

H

K

[2]

(ii) Describe **one** feature of a reflex action.

.....

.....

..... [1]

(iii) State **one** example of a reflex action.

..... [1]

(c) Certain types of drugs can affect the nervous system.

Heroin and alcohol both affect reflex actions.

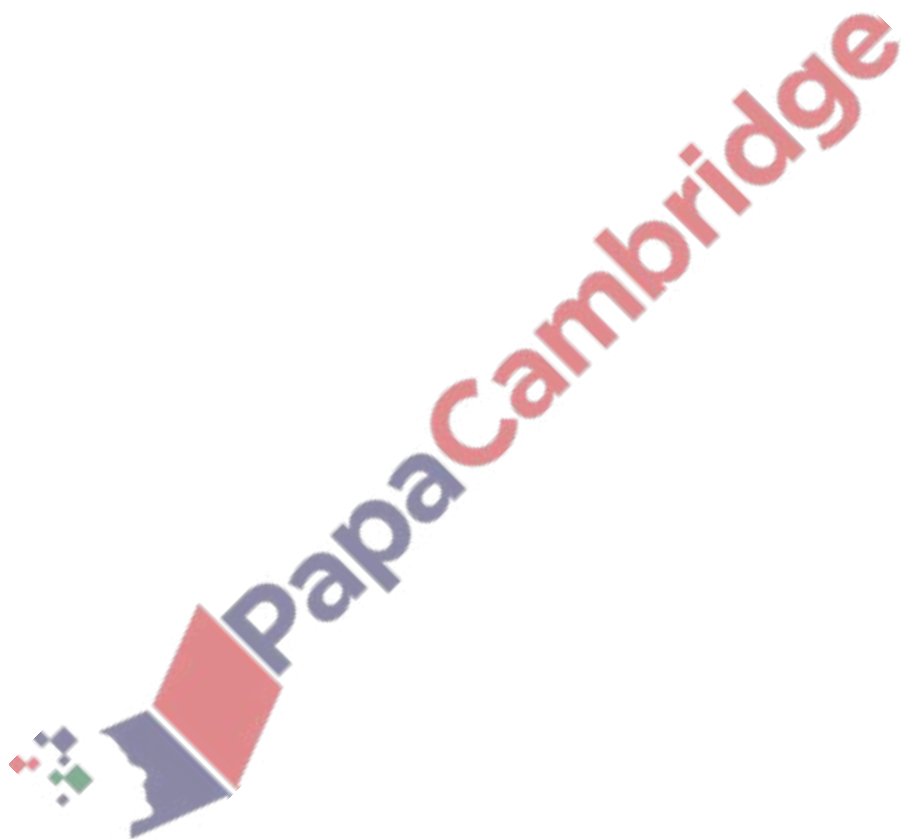
(i) State **one** effect of heroin on the nervous system.

..... [1]

(ii) State **one** long-term effect of excessive consumption of alcohol.

..... [1]

[Total: 9]



Two identical potted plants were used to investigate plant responses.

Plant **A** was placed on a clinostat that continually rotated. Plant **B** was not rotated.

Both plants were then placed on their sides and kept in the dark.

Fig. 4.1 shows the two plants at the start of the experiment and after seven days.

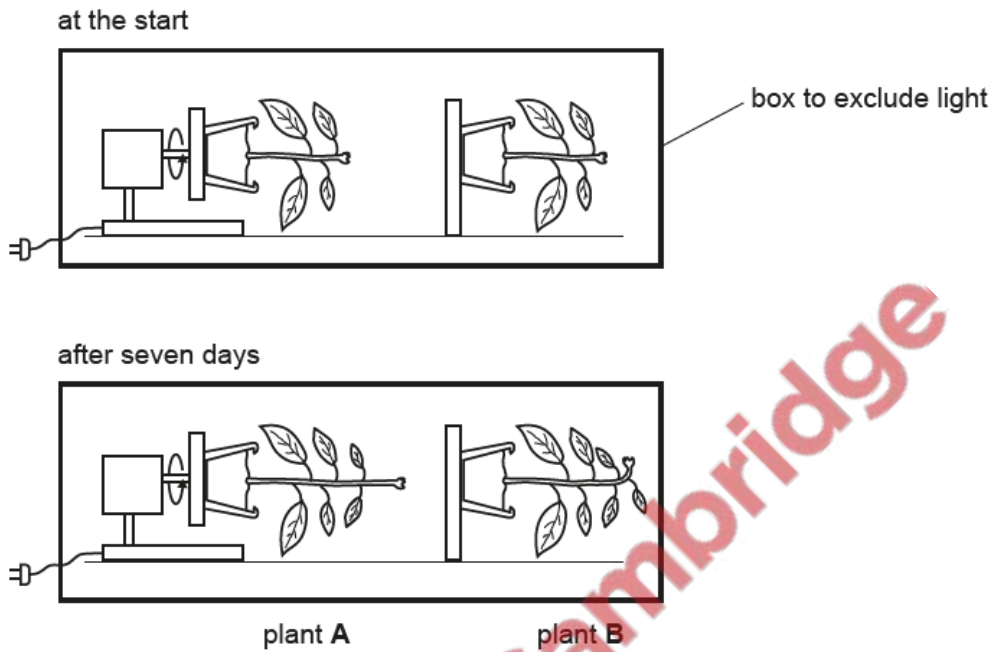


Fig. 4.1

(a) State the name of the response shown by the shoot of plant **B**.

..... [1]

(b) Explain the reason for constantly rotating plant **A**.

.....

 [2]

(c) (i) State the name of the plant hormone that causes the response of the shoot of plant **B**.

..... [1]

(ii) Explain how the plant hormone causes the response of plant B.

.....

.....

.....

.....

.....

.....

.....

..... [3]

(d) Seeds germinate in the soil. The seedlings that grow from seeds show the same response as shown by plant B in Fig. 4.1.

Explain the advantages of this response to the survival of seedlings and mature plants.

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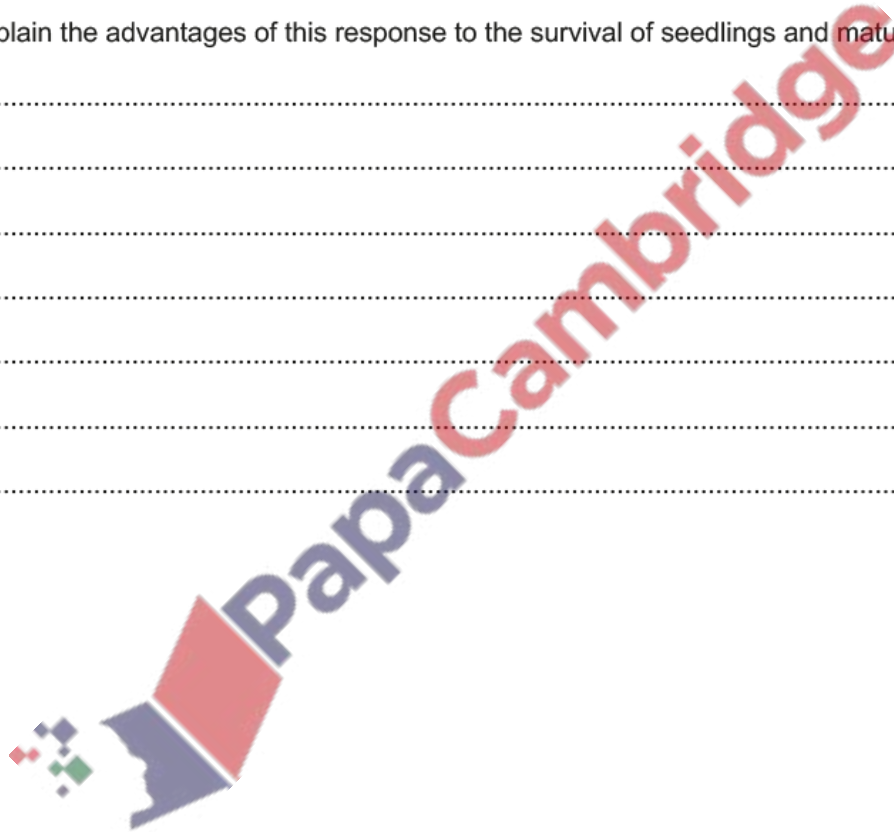
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..... [3]

[Total: 10]



(a) Complete the sentence about the nervous system.

The brain and spinal cord form the nervous system and the nerves coming into and out of the spinal cord are part of the nervous system. [1]

(b) Fig. 1.1 shows part of a human eye and three neurones that conduct electrical impulses between the eye and the brain. These neurones are involved in the pupil reflex.

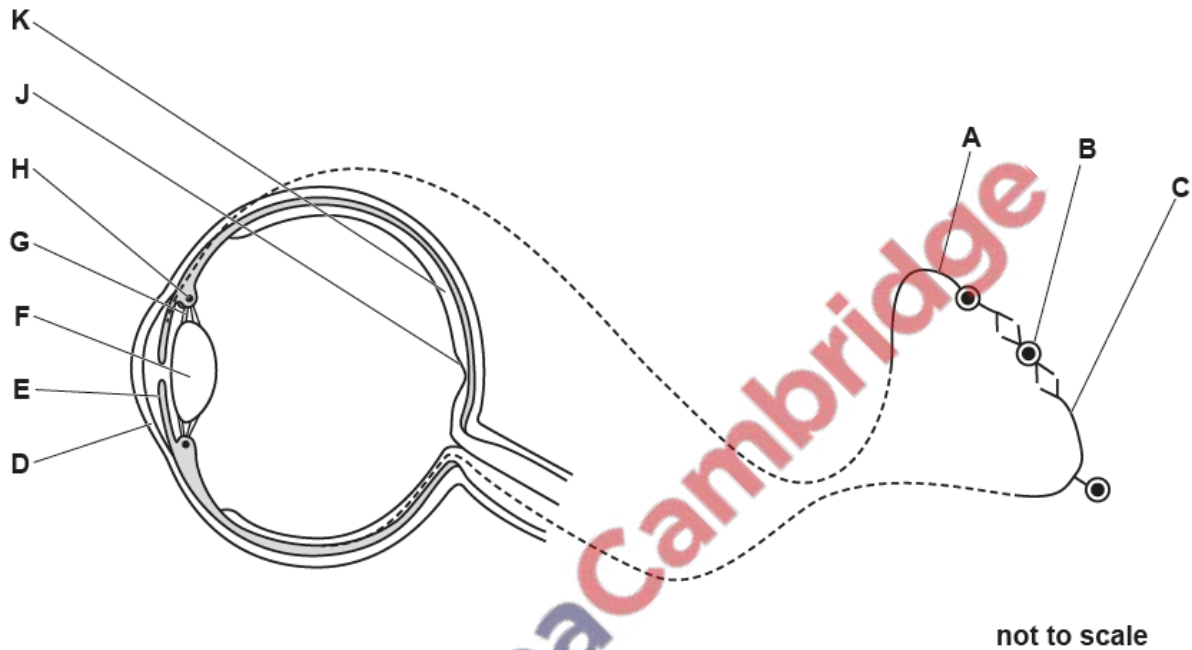


Fig. 1.1

(i) State the type of neurone identified as A in Fig. 1.1.

..... [1]

- (ii) Table 1.1 shows the names of some parts of the eye, their functions and the letters in Fig. 1.1 that identify the parts of the eye.

Complete Table 1.1.

Table 1.1

part of the eye	function	letter in Fig. 1.1
suspensory ligament		G
	contracts in response to a bright light	
cornea		
	contains a high density of cones for colour vision	

[4]

- (c) (i) The eye can adjust how light is refracted through it in order to focus on a near object.

State **one** process that uses energy when focusing on a near object.

..... [1]

- (ii) Mitochondria require oxygen to release energy. Oxygen is transported to cells in the eye by red blood cells.

State the name of the molecule in red blood cells that carries oxygen.

..... [1]

- (iii) Explain how oxygen in the capillaries reaches the cells in the eye.

.....

 [2]

(d) Eyelashes and eyelids are mechanical barriers that help to prevent particles and pathogens entering the eye.

(i) Give **two** other mechanical barriers that defend the body against pathogens.

1

2

[2]

(ii) State the name of the white blood cells that digest pathogens.

..... [1]

(iii) Conjunctivitis can be caused by pathogens and affects the tissues lining the eyelids and covering the sclera. People with conjunctivitis that is caused by a pathogen can develop active immunity.

Explain why the shape of specific parts of a pathogen is important in the development of active immunity.

.....
.....
.....
.....
.....
.....
.....
.....
..... [3]

(e) Most insects and some crustaceans have compound eyes.

State the name of the **group** that contains insects and crustaceans.

..... [1]

[Total: 17]

