Coordination and response – 2023 June IGCSE 0610

1. June/2023/Paper_0610/11/No.27

What is the name of the junction between two neurones?

A effector

B receptor

C gland

D synapse

2. June/2023/Paper_0610/11/No.28

Which statement about adrenaline is correct?

A It decreases the heart rate.

B It decreases the diameter of the pupil.

C It increases the breathing rate.

D It is made in the pancreas.

3. June/2023/Paper_0610/11/No.29

Which words complete the statements?

Plant growth towards light is called .....1..... .

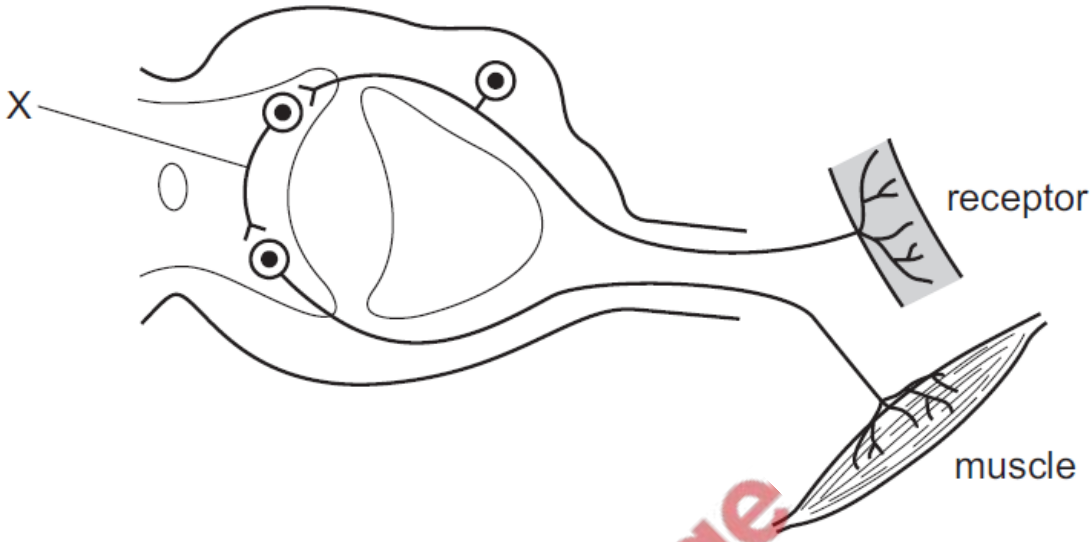
When a plant shoot grows towards a light source, it is showing a .....2..... to light.

Light acts as the .....3..... .

	1	2	3
A	movement	response	stimulus
B	movement	stimulus	response
C	phototropism	response	stimulus
D	phototropism	stimulus	response

4. June/2023/Paper_0610/12/No.26

The diagram shows the structures in a reflex arc.



What is X?

A effector

B relay neurone

C sensory neurone

D synapse

5. June/2023/Paper_0610/12/No.27

Changes in light intensity cause changes in the diameter of the pupil in the eye.

Which rows show the pupil reflex?

	light intensity	pupil diameter
1	high	increases
2	high	decreases
3	low	increases
4	low	decreases

A 1 and 3 **B** 1 and 4 **C** 2 and 3 **D** 2 and 4

6. June/2023/Paper_0610/12/No.28

A hormone is injected into a person to reduce their blood glucose concentration.

Which endocrine gland is **not** functioning properly in a person who needs to have this injection?

A adrenal gland

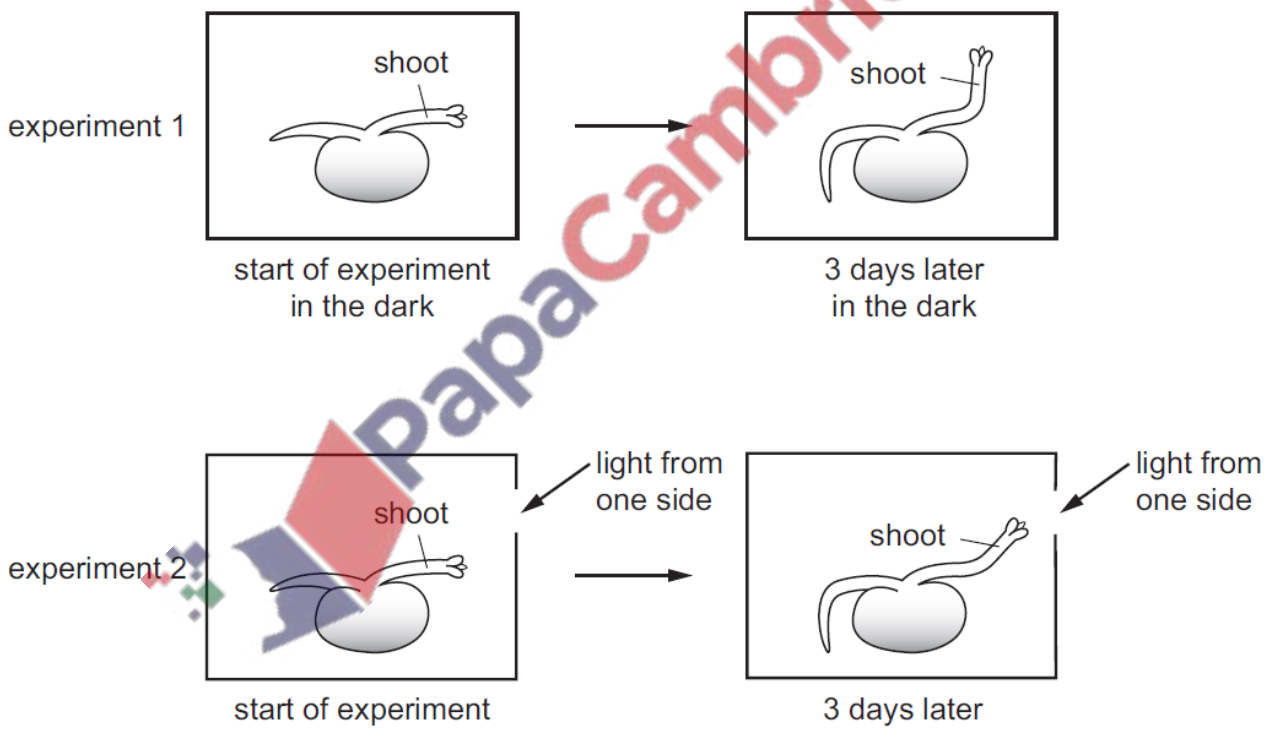
B ovary

C pancreas

D testis

7. June/2023/Paper_0610/13/No.26

The diagram shows seedlings in two experiments on the tropic response of seedlings to gravity and light.



Which stimuli have the seedlings responded to?

	experiment 1	experiment 2
A	gravity and light	light only
B	gravity only	gravity and light
C	gravity and light	light only
D	light only	gravity and light

8. June/2023/Paper_0610/21/No.24

The events listed involve neurotransmitter molecules at a synapse.

1 They bind with receptor proteins.

2 They diffuse across the synaptic gap.

3 They enter the synaptic gap.

4 They are released from vesicles.

What is the sequence of events that occur when an impulse arrives at the synapse?

A 3 → 2 → 1 → 4

B 4 → 3 → 1 → 2

C 3 → 4 → 1 → 2

D 4 → 3 → 2 → 1

9. June/2023/Paper_0610/21/No.25

What occurs during accommodation to focus on distant objects?

	ciliary muscle	lens shape	suspensory ligaments
A	contracts	fat	slack
B	relaxes	thin	tight
C	contracts	fat	tight
D	relaxes	thin	slack

10. June/2023/Paper_0610/21/No.26

What is a correct statement about auxin in shoots?

A It is made only on the shaded side of the shoot.

B It is more concentrated on the side of the shoot that receives the most light.

C It moves through the shoot by osmosis.

D It stimulates cell elongation.

11. June/2023/Paper_0610/22/No.6

Which row shows the changes that occur during the germination of a seed?

	respiration rate	amount of energy required	how ions are absorbed
A	decreased	decreased	active transport
B	decreased	increased	diffusion
C	increased	decreased	diffusion
D	increased	increased	active transport

12. June/2023/Paper_0610/22/No.24

Which statement describes what happens during the transmission of an electrical impulse along a reflex arc?

A The relay neurone has receptor proteins which bind with neurotransmitter molecules.

B The relay neurone has vesicles which bind with neurotransmitter molecules.

C The sensory neurone causes receptor proteins to release neurotransmitter molecules.

D The sensory neurone impulses cause vesicles to release receptor protein molecules.

13. June/2023/Paper_0610/22/No.25

During the pupil reflex in bright light, what describes the actions of the muscles in the iris?

A The circular muscles of the iris contract and the radial muscles relax.

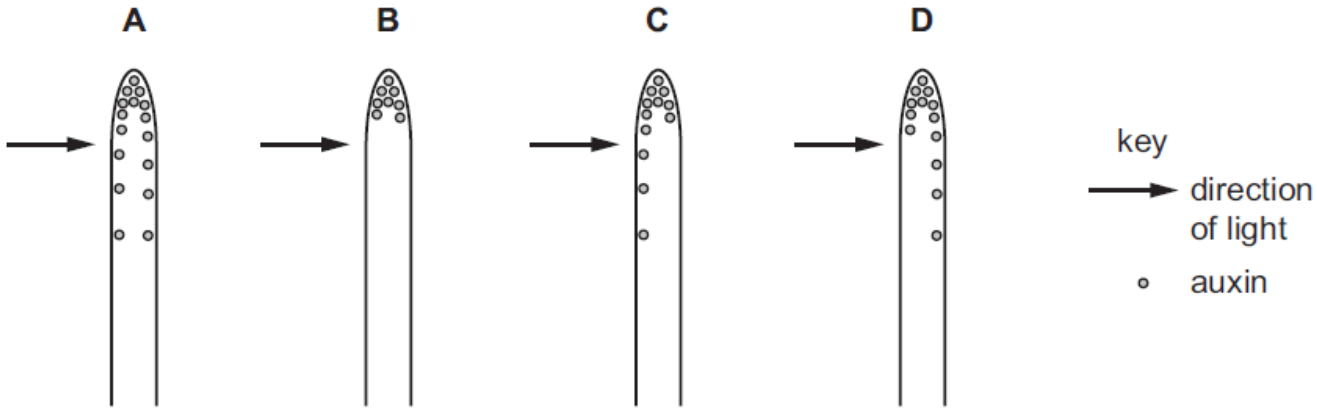
B The circular muscles of the iris contract and the radial muscles contract.

C The circular muscles of the iris relax and the radial muscles contract.

D The circular muscles of the iris relax and the radial muscles relax.

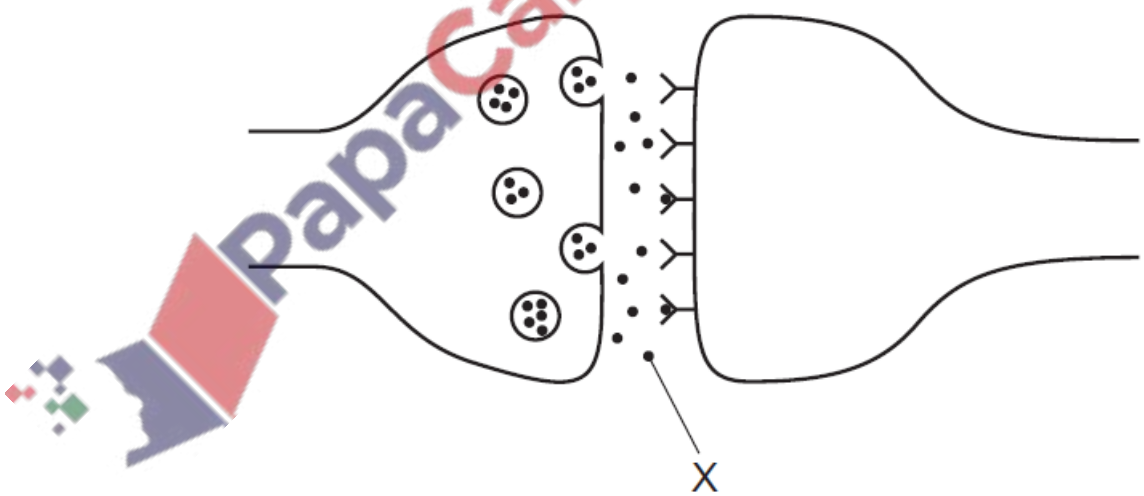
14. June/2023/Paper_0610/22/No.26

Which distribution of auxin will cause the shoot tip to grow towards the light?



15. June/2023/Paper_0610/23/No.24

The diagram shows the gap between two neurones.



What is the name of X?

A neurotransmitter

B receptor

C synapse

D vesicle

16. June/2023/Paper_0610/23/No.25

Which statements are correct for cone cells in the eye?

1 Cone cells are located in the fovea of the retina.

2 Cone cells detect colour.

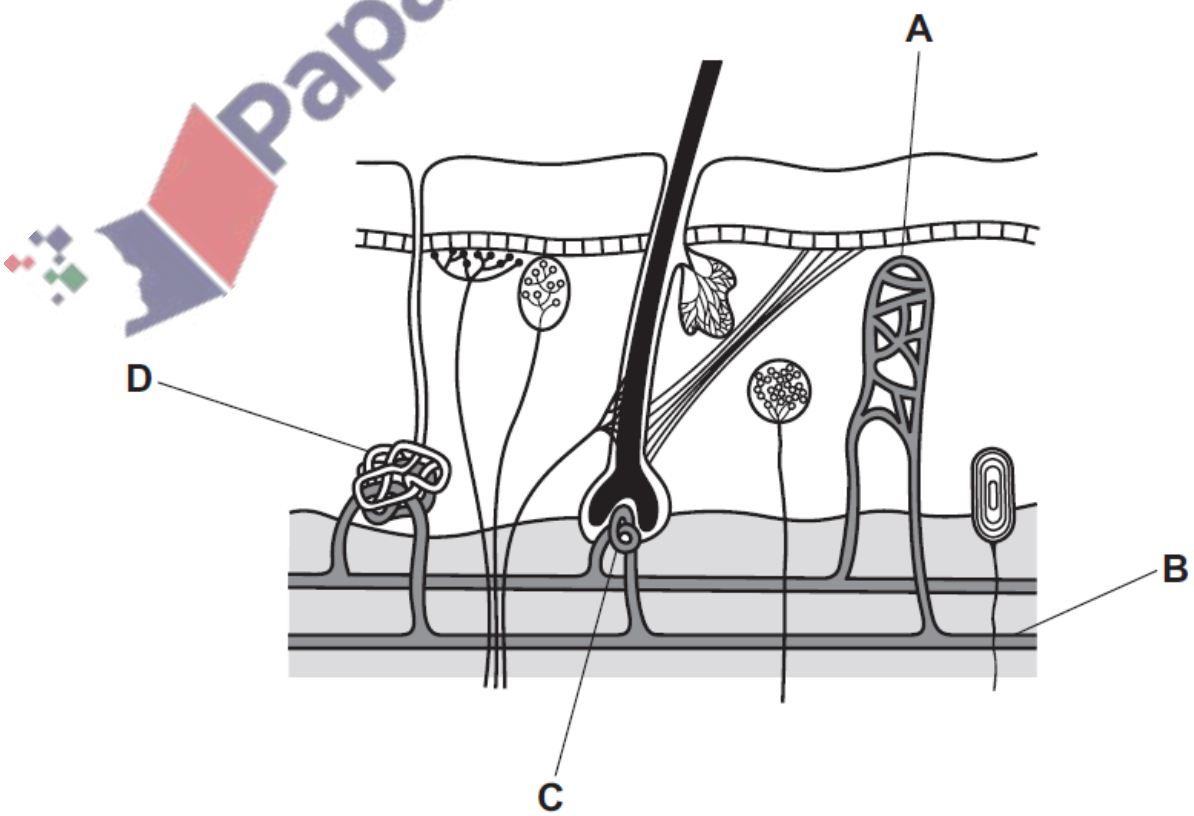
3 Cone cells are more sensitive to light than rod cells.

A 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 2 and 3 only

17. June/2023/Paper_0610/23/No.26

The diagram shows the structure of the human skin.

Which structure constricts to reduce heat loss?



18. June/2023/Paper_0610/31/No.8

(a) Fig. 8.1 is a diagram representing a reflex action.

When the knee is tapped with a small rubber hammer, the leg will immediately straighten.

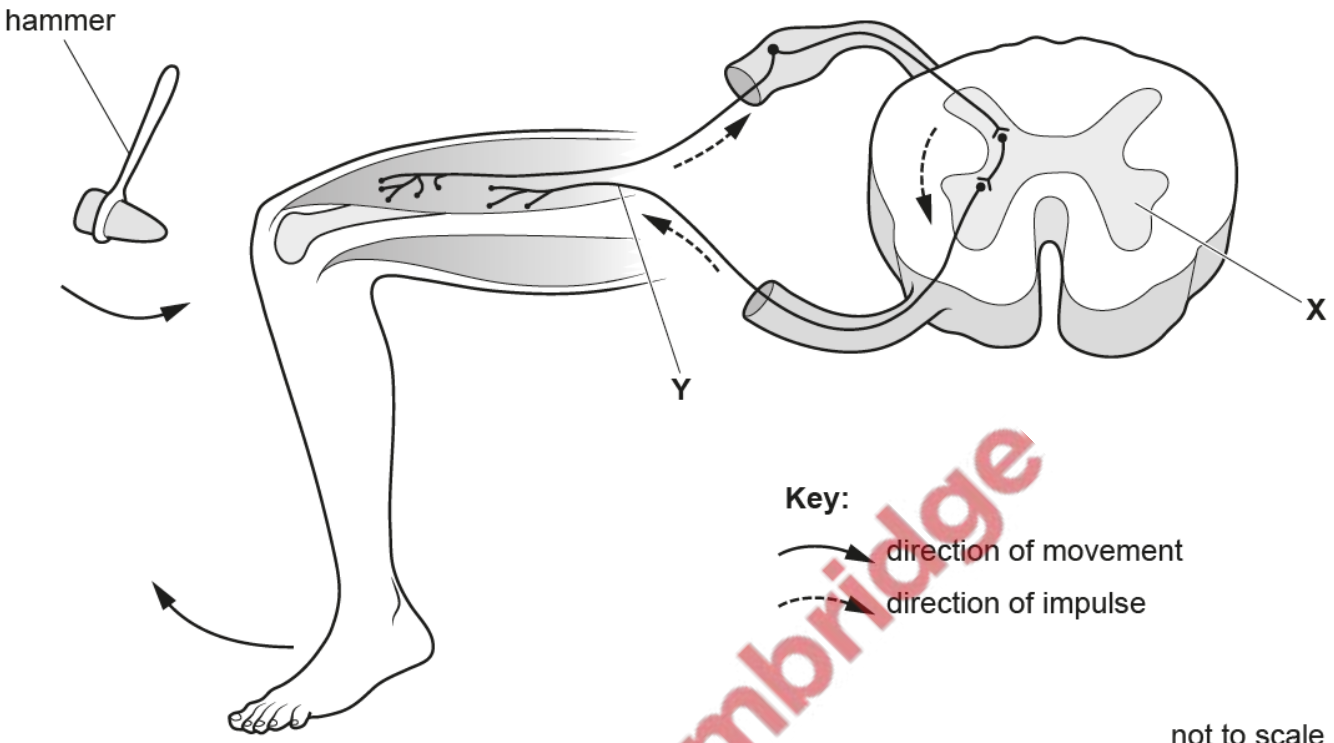


Fig. 8.1

(i) Identify the parts labelled **X** and **Y** in Fig. 8.1.

X .....

Y .....

[2]

(ii) State the name of the effector in the example shown in Fig. 8.1.

..... [1]

(iii) Describe the stimulus in the example shown in Fig. 8.1.

.....

.....

..... [1]

(iv) State **two** features of reflex actions.

1 .....

2 .....

[2]

19. June/2023/Paper_0610/32/No.6

(a) The eye is a sense organ that contains receptor cells that respond to light.

State **three** other stimuli that sense organs respond to.

1 .....

2 .....

3 .....

[3]

(b) Fig. 6.1 shows a section through the human eye.

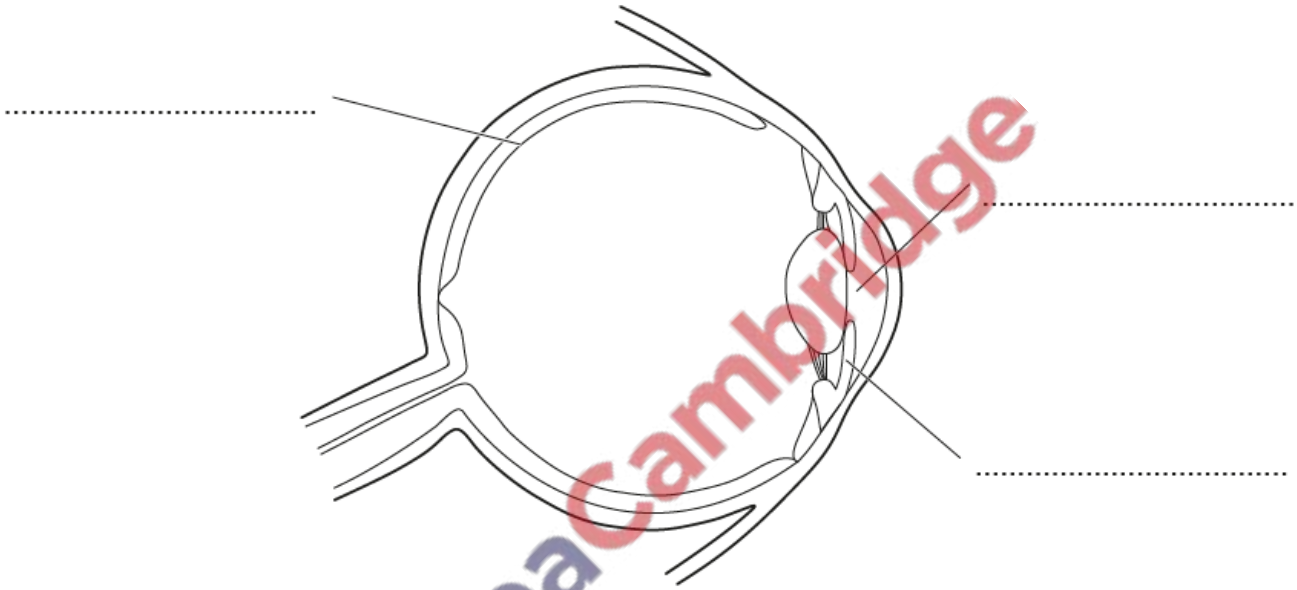


Fig. 6.1

(i) State the names of the structures labelled on Fig. 6.1.

Write your answers in the spaces provided. [3]

(ii) Draw an **X on Fig. 6.1** to show the location of the blind spot. [1]

(c) **(i)** The sentences describe some of the events that occur when the eye responds to light.

Complete the sentences using the words from the list.

Each word may be used once, more than once or not at all.

absorbed	**brain**	**glands**	**lens**	**muscles**
pupil	**receptors**	**reflected**	**refracted**	

Rays of light reach the front of the eye. Light is ..... through the cornea and the ..... focuses light on the retina. Light ..... in the retina detect light and the optic nerve carries impulses to the ..... .

[4]

(ii) State what happens to the pupil's diameter in a person's eye when they move from a bright room to a dark room.

..... [1]

[Total: 12]

20. June/2023/Paper_0610/33/No.6

A seedling is a seed which has just started to grow a small root and a small shoot.

(a) State the environmental conditions that a seed requires to grow into a seedling.

.....

.....

.....

..... [3]

(b) Fig. 6.1 shows a drawing of a seedling at the start of an investigation into plant growth responses.

The seedling was attached to a piece of card so that the root and shoot were horizontal.

The card and seedling were placed inside a box that excluded all light. The box was placed on the ground for three days.

Fig. 6.1 shows the apparatus at the start of the investigation.

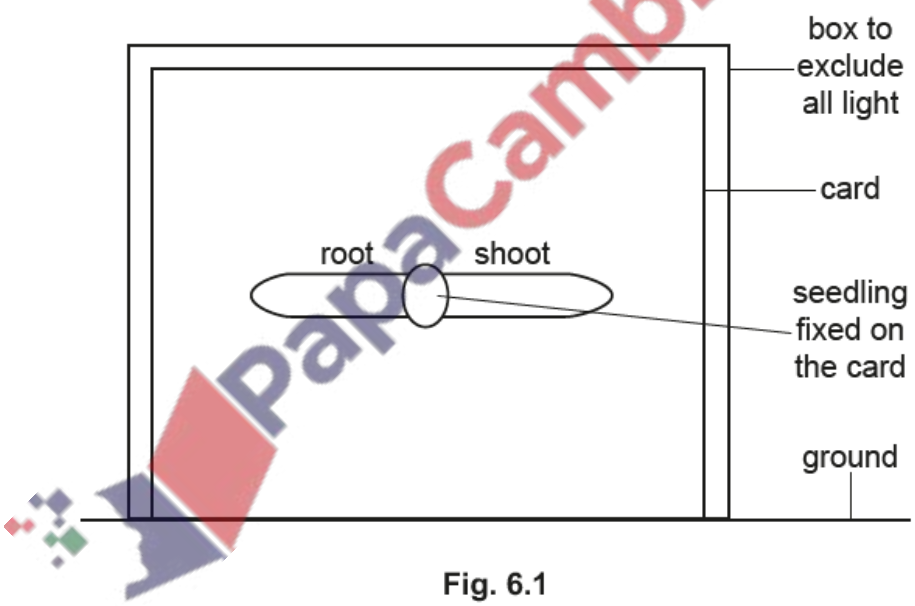


Fig. 6.1

(i) On Fig. 6.2 draw the expected appearance of the root and shoot after three days in the box.

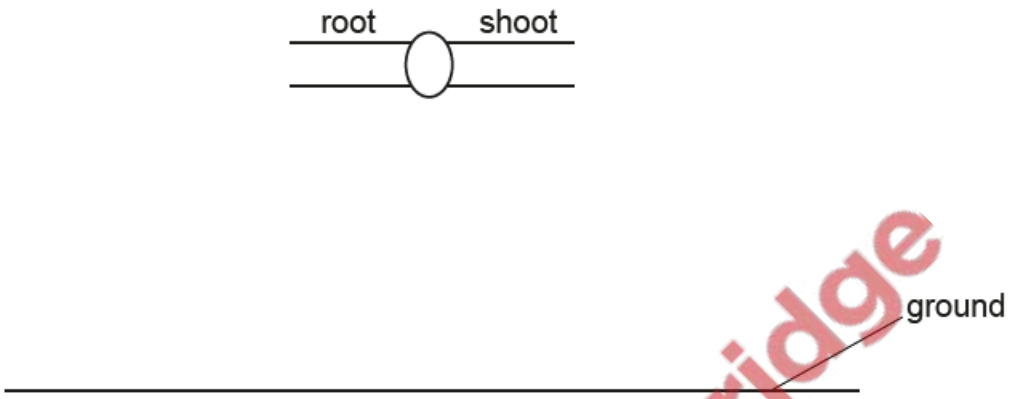


Fig. 6.2

[2]

(ii) State the name of the response shown by the root and the shoot in this investigation.

..... [1]

[Total: 6]

21. June/2023/Paper_0610/42/No.6

(a) A student investigated plant growth responses in roots and shoots. They used this method:

- Damp cotton wool was placed in two Petri dishes.
- Three bean seedlings were attached to the cotton wool in each Petri dish.
- Each seedling was orientated so that the roots pointed in a different direction in each Petri dish.
- Petri dish 1 was kept on its side in a fixed position.
- Petri dish 2 was kept on its side and rotated constantly.
- Both Petri dishes were kept in the dark.
- Both Petri dishes were kept in these conditions for two days.
- After two days the seedlings were observed.

Fig. 6.1 is a diagram of the apparatus.

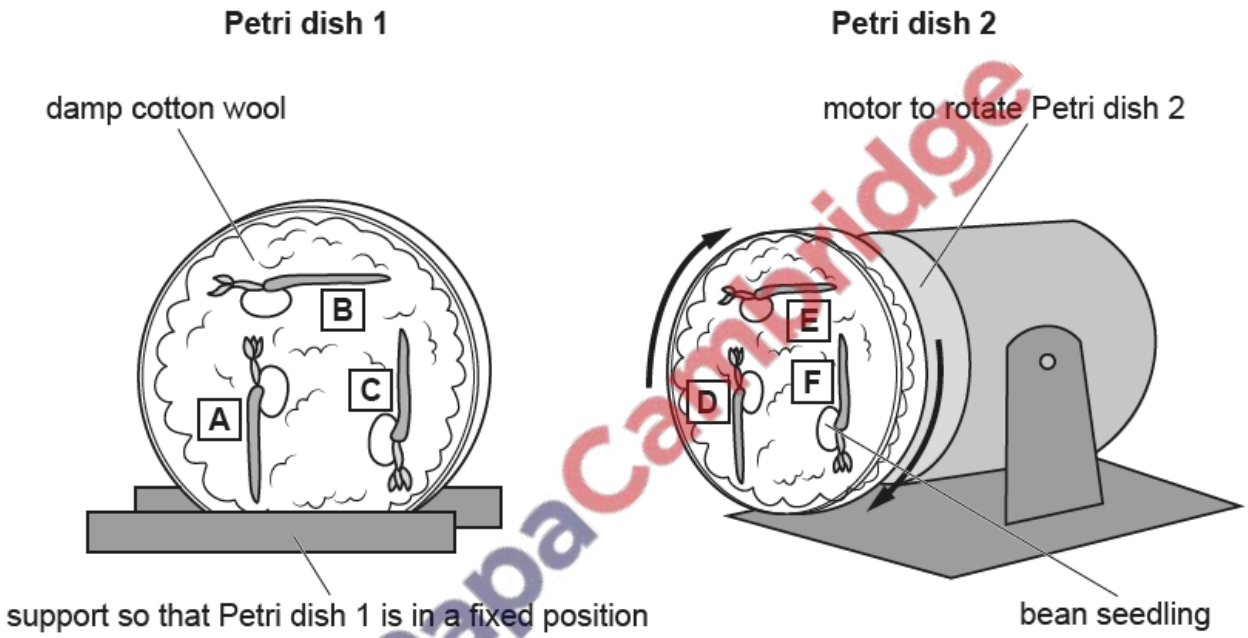


Fig. 6.1

Fig. 6.2 shows the seedlings after two days.

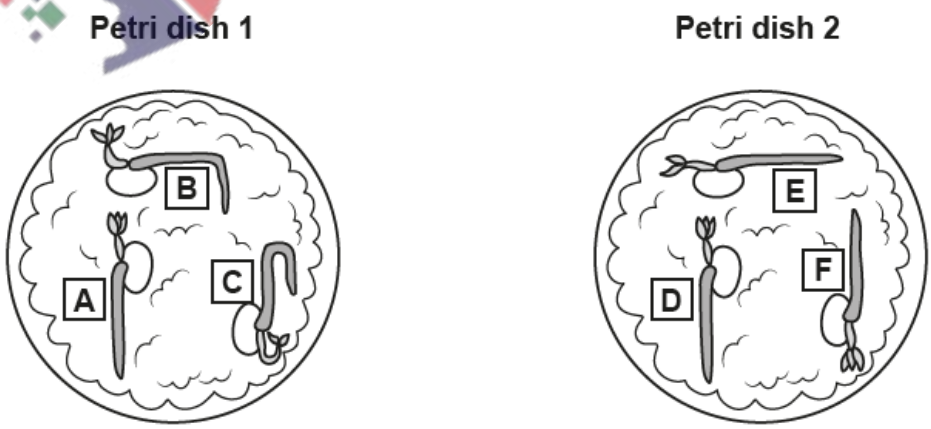


Fig. 6.2

(i) Describe the pattern of growth of the bean roots and shoots in Petri dish **1** shown in Fig. 6.2.

.....

.....

..... [1]

(ii) State the name of the growth responses observed in the bean roots and shoots.

..... [1]

(iii) Explain how auxin causes the difference in the pattern of growth shown by the shoots of seedlings **B** and **E** shown in Fig. 6.2.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [5]

(b) Seeds require oxygen and water to germinate.

(i) State **one** other environmental condition that affects germination.

..... [1]

(ii) Suggest why oxygen and water are required for germination.

.....

.....

.....

.....

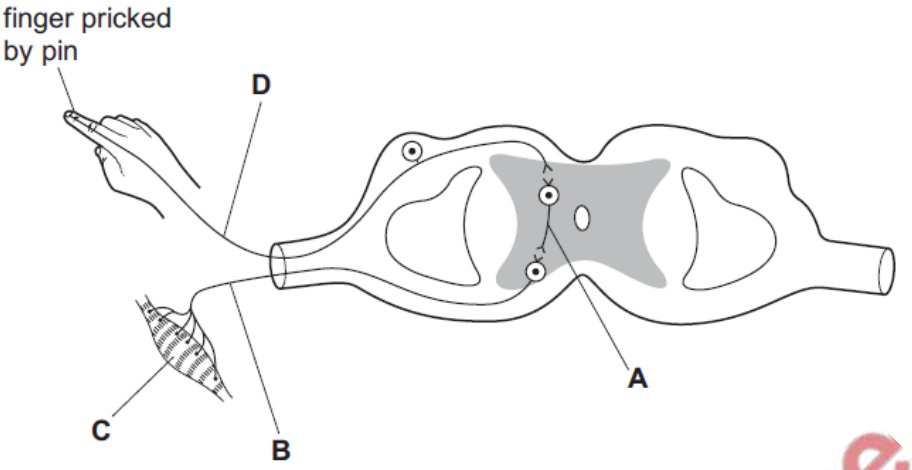
..... [2]

[Total: 10]

22. March/2023/Paper_ 0610/12/No.26

The diagram shows a reflex arc.

Which label identifies the motor neurone?



23. March/2023/Paper_ 0610/12/No.27

What is the role of insulin?

A It decreases blood glucose concentration.

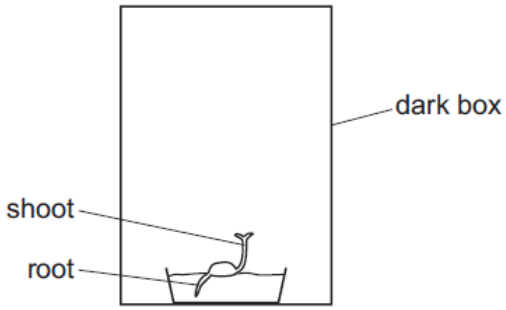
B It increases blood glucose concentration.

C It decreases blood sucrose concentration.

D It increases blood glycogen concentration.

24. March/2023/Paper_ 0610/12/No.28

The diagram shows a seedling growing inside a dark box.



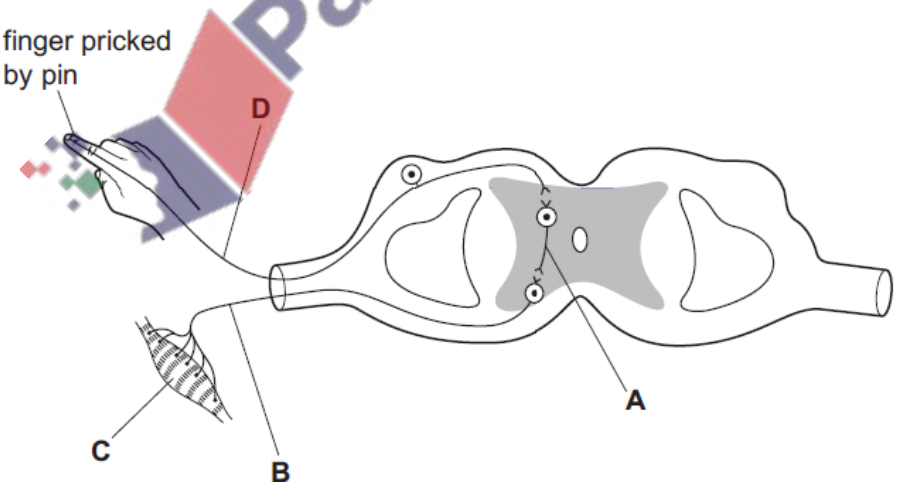
Which type of responses affect the direction of growth of the root and the shoot inside the box?

	response by the root	response by the shoot
A	gravitropism	gravitropism
B	gravitropism	phototropism
C	phototropism	gravitropism
D	phototropism	phototropism

25. March/2023/Paper_ 0610/22/No.24

The diagram shows a reflex arc.

Which label identifies the motor neurone?



26. March/2023/Paper_ 0610/22/No.25

Which structures contain neurotransmitter molecules in neurones?

A chloroplasts

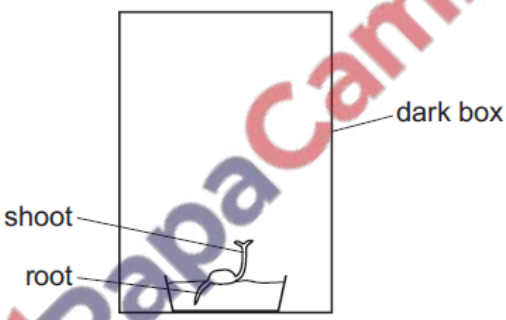
B mitochondria

C ribosomes

D vesicles

27. March/2023/Paper_ 0610/22/No.26

The diagram shows a seedling growing inside a dark box.



Which type of responses affect the direction of growth of the root and the shoot inside the box?

	response by the root	response by the shoot
A	gravitropism	gravitropism
B	gravitropism	phototropism
C	phototropism	gravitropism
D	phototropism	phototropism

28. March/2023/Paper_ 0610/42/No.5

The eye is a sense organ that is part of the nervous system.

(a) Explain why the eye can be described as a sense organ.

.....

.....

.....

.....

..... [2]

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

1 .....

2 .....

[2]

(c) Fig. 5.1 is a diagram of a section through the human eye.

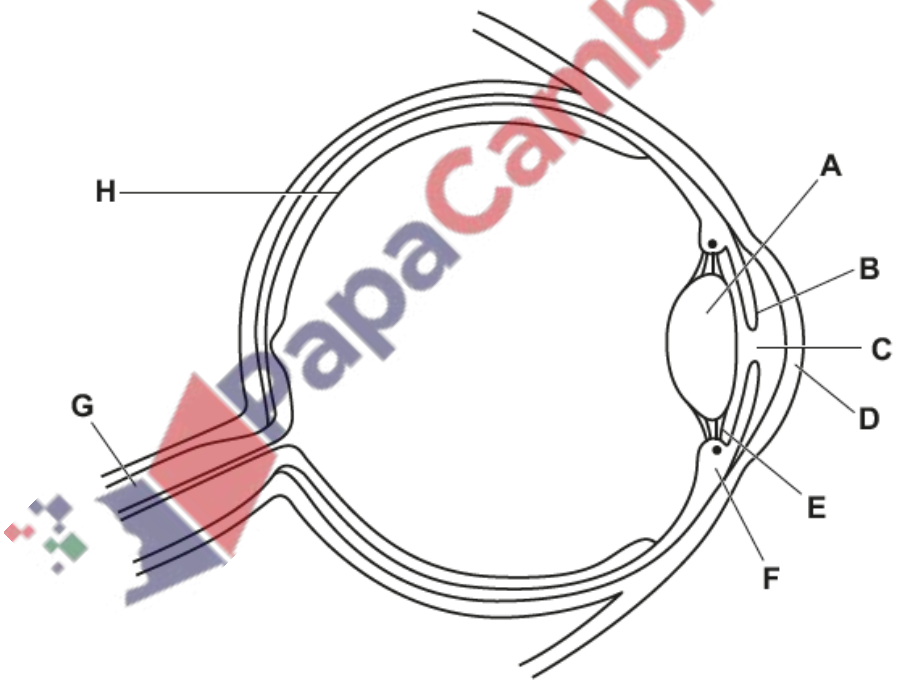


Fig. 5.1

(i) Draw an **X** on Fig. 5.1 to identify the blind spot. [1]

(ii) Table 5.1 shows some of the parts labelled in Fig. 5.1, their names and their functions.

Complete Table 5.1.

Table 5.1

name of the part	letter in Fig. 5.1	function
	H	
		transmits impulses to the central nervous system
cornea		

[3]

(d) State the names of the **two** effectors that contract and relax during the pupil reflex.

..... and ..... [1]

(e) Explain why a person is unable to focus on distant objects if the suspensory ligaments become permanently overstretched.

.....

.....

.....

.....

.....

.....

..... [3]

[Total: 12]