Coordination and response – 2020 IGCSE 0610

1. Nov/2020/Paper_11/No.23

The list shows some processes that happen in the human body.

1 water enters cells by osmosis

2 muscles contract

3 impulses travel along neurones

4 oxygen diffuses into cells

Which of these require energy released by respiration?

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

2. Nov/2020/Paper_11/No.25

Which is the correct sequence of structures through which a nerve impulse passes in a reflex arc?

A effector → motor neurone → relay neurone → sensory neurone → receptor

B effector → sensory neurone → relay neurone → motor neurone → receptor

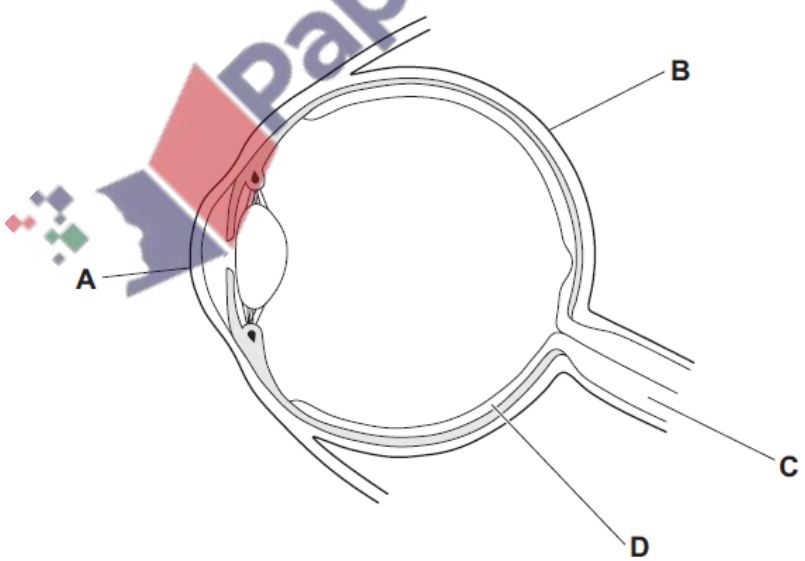
C receptor → motor neurone → relay neurone → sensory neurone → effector

D receptor → sensory neurone → relay neurone → motor neurone → effector

3. Nov/2020/Paper_11/No.26

The diagram shows an eye.

Which labelled part contains cells that are sensitive to light?



4. Nov/2020/Paper_11/No.27

Which hormone stimulates the development of male gametes?

A adrenaline

B insulin

C oestrogen

D testosterone

5. Nov/2020/Paper_12/No.25

Which structure contains relay neurones?

A gland

B muscle

C spinal cord

D synapse

6. Nov/2020/Paper_12/No.26

A man injures his arm in an accident. Afterwards, he can move his hand but cannot feel objects touching his hand.

What could cause this?

A Both sensory and motor neurones are cut.

B Effectors are damaged.

C Motor neurones are cut.

D Sensory neurones are cut.

7. Nov/2020/Paper_12/No.27

What are the effects of adrenaline on the human body?

	breathing rate	pulse rate	size of pupils
A	decreased	decreased	decreased
B	decreased	decreased	increased
C	increased	increased	decreased
D	increased	increased	increased

8. Nov/2020/Paper_13/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 muscles to sense organs.

9. Nov/2020/Paper_13/No.26

What is a function of the cornea?

A carries impulses to the brain

B contains light-sensitive receptors

C controls how much light enters the eye

D refracts light

10. Nov/2020/Paper_13/No.27

Which responses are shown by the root of a plant?

	gravitropism	phototropism
A	–	–
B	–	+
C	+	–
D	+	+

key

+ = grows towards the stimulus

– = grows away from the stimulus

11. Nov/2020/Paper_21/No.23

Which is the correct sequence of structures through which a nerve impulse passes in a reflex arc?

A effector → motor neurone → relay neurone → sensory neurone → receptor

B effector → sensory neurone → relay neurone → motor neurone → receptor

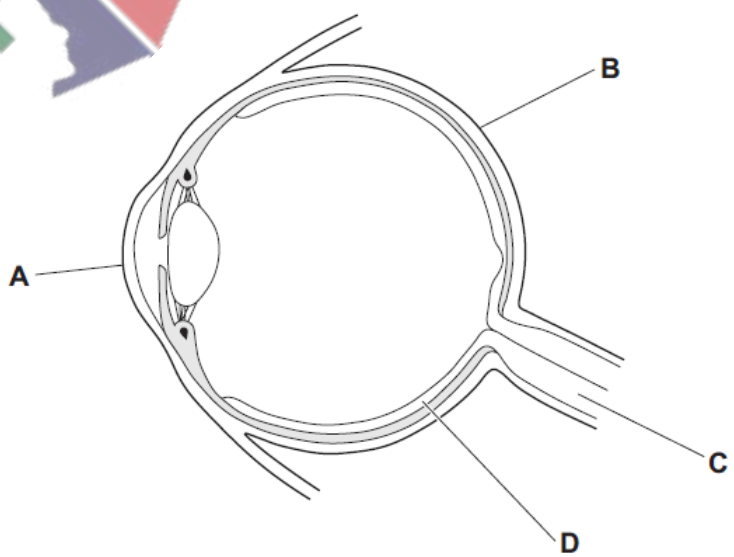
C receptor → motor neurone → relay neurone → sensory neurone → effector

D receptor → sensory neurone → relay neurone → motor neurone → effector

12. Nov/2020/Paper_21/No.24

The diagram shows an eye.

Which labelled part contains cells that are sensitive to light?



13. Nov/2020/Paper_21/No.25

When hormones are secreted, they affect different parts of the body.

The table shows some features that are affected by four different hormones.

Which hormone is adrenaline?

	feature				
	pulse rate	blood glucose concentration	pupil size	menstrual cycle	sperm production
A	✓	✓	✗	✗	✗
B	✗	✗	✗	✗	✓
C	✓	✓	✓	✗	✗
D	✗	✗	✗	✓	✗

key
✓ = affected by hormone
✗ = not affected by hormone

14. Nov/2020/Paper_21/No.26

When the environment is hot, how do the arterioles in the skin and hair erector muscles react?

	arterioles	hair erector muscles
A	dilate	relax
B	dilate	contract
C	constrict	relax
D	constrict	contract

15. Nov/2020/Paper_22/No.23

Which structure contains relay neurones?

A gland

B muscle

C spinal cord

D synapse

16. Nov/2020/Paper_22/No.24

A man injures his arm in an accident. Afterwards, he can move his hand but cannot feel objects touching his hand.

What could cause this?

A Both sensory and motor neurones are cut.

B Effectors are damaged.

C Motor neurones are cut.

D Sensory neurones are cut.

17. Nov/2020/Paper_22/No.25

How does the skin react when the body becomes cold?

	arterioles supplying the skin surface	sweat production
A	constrict	decreases
B	dilate	increases
C	move towards skin surface	decreases
D	move away from skin surface	increases

18. Nov/2020/Paper_23/No.23

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 muscles to sense organs.

19. Nov/2020/Paper_23/No.24

What is a function of the cornea?

A carries impulses to the brain

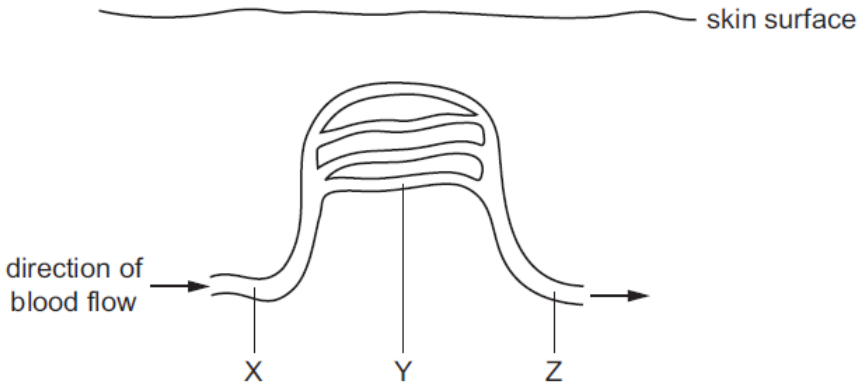
B contains light-sensitive receptors

C controls how much light enters the eye

D refracts light

20. Nov/2020/Paper_23/No.25

The diagram shows some blood vessels near the surface of the skin.



If vasodilation occurs at X, what happens to the blood flow at Y and Z?

	Y	Z
A	decreases	decreases
B	decreases	stays constant
C	increases	increases
D	increases	stays constant

21. Nov/2020/Paper_31/No.4

(a) A scientist investigated how the growth of plant shoots was affected by the direction of light.

A light source was placed on one side of a shoot and the scientist recorded the appearance of the shoot after a few days.

Fig. 4.1 shows his results.

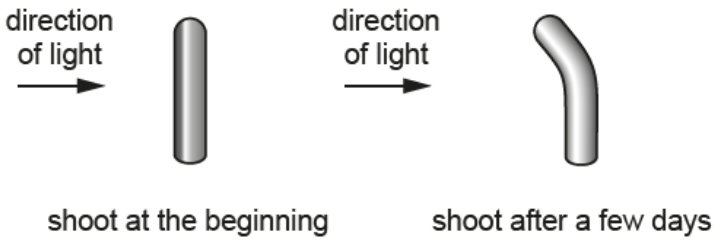


Fig. 4.1

(i) Describe the results shown in Fig. 4.1.

.....

.....

..... [1]

(ii) State the name of the response to light shown in Fig. 4.1.

..... [1]

(iii) Explain the advantage to a plant of the response shown in Fig. 4.1.

.....

.....

.....

.....

..... [2]

(b) Plant roots absorb mineral ions by active transport.

(i) Define the term active transport.

.....

.....

.....

..... [3]

(ii) State the importance of these mineral ions in plants.

magnesium ions .....

.....

.....

nitrate ions .....

.....

.....

[2]

(c) State **two** uses of water in plants.

1 .....

2 .....

[2]

[Total: 11]

22. Nov/2020/Paper_33/No.4

(a) Define the term homeostasis.

.....

.....

.....

.....

..... [2]

(b) The skin is an important organ involved in temperature regulation in mammals.

Fig. 4.1 is a diagram of a cross-section of mammalian skin.

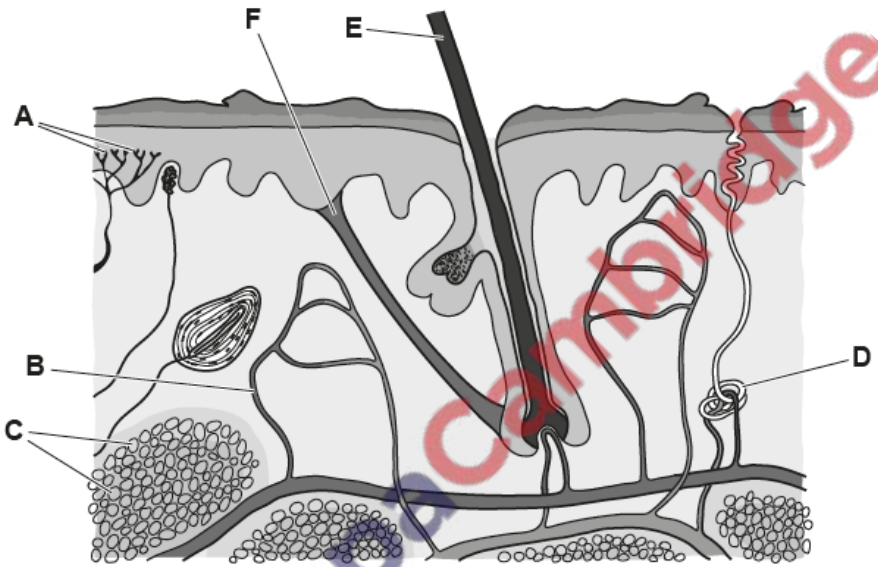


Fig. 4.1

(i) State the names of structures **A**, **B**, **C** and **D** on Fig. 4.1.

A .....

B .....

C .....

D .....

[4]

(ii) Describe how the structures labelled **C**, **E** and **F** in Fig. 4.1 reduce heat loss in **cold** conditions.

.....

.....

.....

.....

.....

.....

..... [3]

(iii) Complete the sentences about maintenance of body temperature using the words and phrases from the list.

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

blood **brain** **condenses** **evaporates**

neurones **receptors** **skin**

sweat **temperature** **water content**

Control of body temperature is coordinated by the ..... .

There are temperature ..... that sense the temperature of the

..... .

When the temperature gets too hot, glands release ..... onto

the surface of the skin and the water in it ..... reducing body

temperature.

[5]

[Total: 14]

23. Nov/2020/Paper_41/No.6

Sensitivity is one of the characteristics of all living organisms.

(a) Define the term *sensitivity*.

.....

.....

..... [2]

(b) The eye is an example of a sense organ.

(i) Define the term *sense organ*.

.....

.....

..... [2]

(ii) Adrenaline is a hormone that is released in 'fight or flight' situations. It causes a change in the eye.

Complete Table 6.1 by stating the parts of the eye that change when adrenaline is released into the blood.

Table 6.1

action	part of the eye
muscle that relaxes	
muscle that contracts	
widens	

[3]

[Total: 7]

24. Nov/2020/Paper_42/No.1

(a) Sensitivity is one of the characteristics of life. The eye is one of the major sense organs of vertebrates.

(i) Define the term *sensitivity*.

.....

.....

.....

..... [2]

(ii) Define the term *sense organ*.

.....

.....

.....

..... [2]

(b) Accommodation (focusing) is one of the functions of the eye.

Fig. 1.1 is a diagram of an eye that is focusing on a distant object.

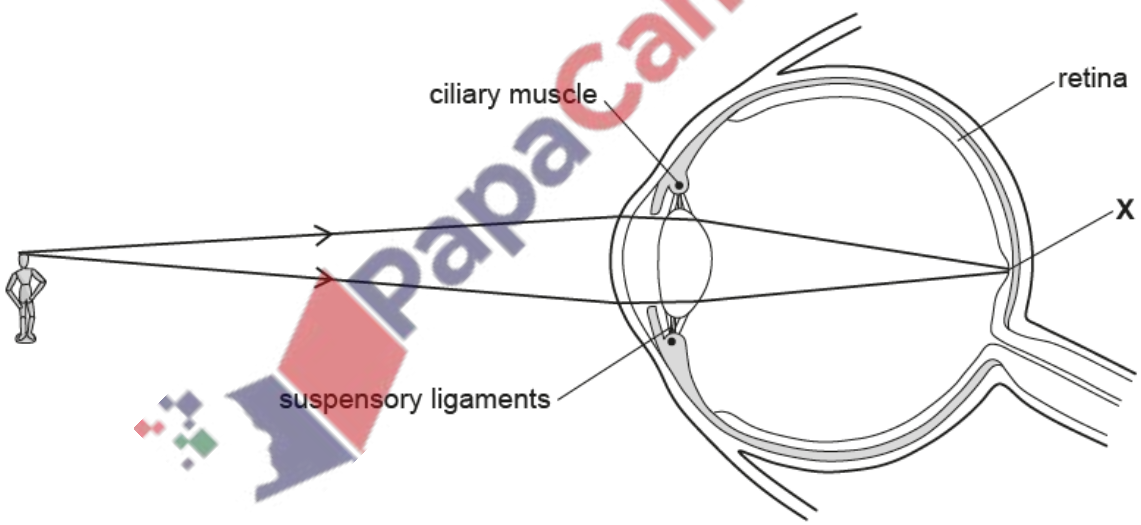


Fig. 1.1

(i) State the name of the part of the retina labelled **X**.

..... [1]

Fig. 1.2 is an incomplete diagram of an eye that is focusing on a near object.

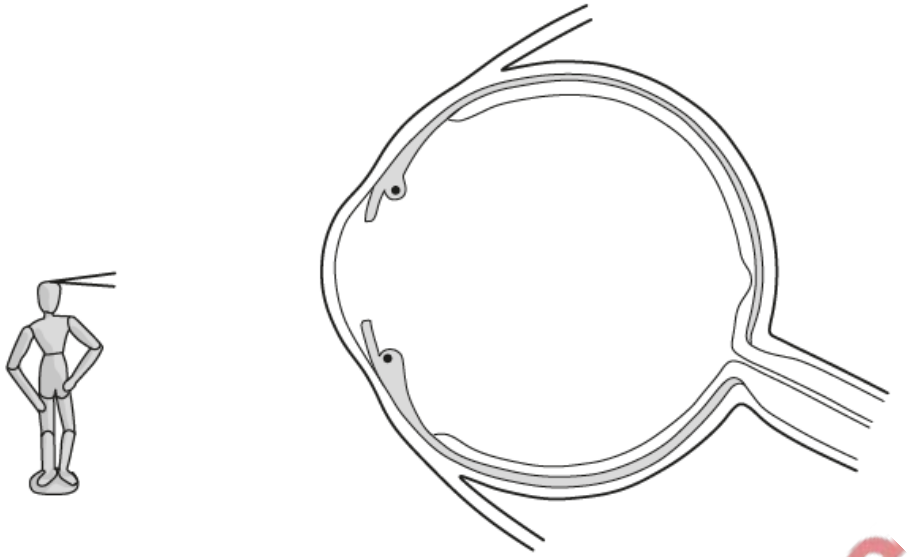


Fig. 1.2

(ii) Complete Fig. 1.2 by **drawing** the shape of the lens and the light rays from the object to the retina. [3]

(iii) Describe the roles of the ciliary muscles and suspensory ligaments in focusing on a **distant object**, as shown in Fig. 1.1.

.....

.....

.....

.....

.....

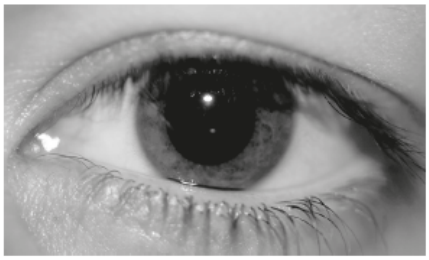
.....

.....

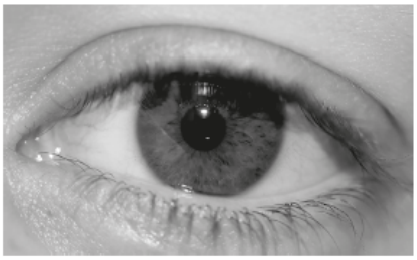
..... [3]

(c) The eye also controls the amount of light that enters the pupil.

Fig. 1.3 shows an eye in low light and in bright light.



eye in low light



eye in bright light

Fig. 1.3

Describe the changes that occur in the eye when the light becomes bright, as shown in Fig. 1.3.

.....

.....

.....

.....

.....

.....

.....

..... [3]

(d) The change shown in Fig. 1.3 occurs automatically without thought.

State the name given to this type of action.

..... [1]

[Total: 15]