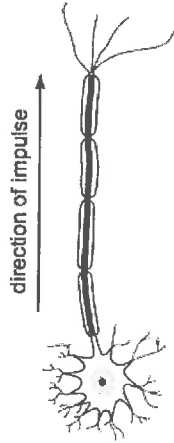


# IGCSE Biology Unit 14 Summative Assessment

Name: \_\_\_\_\_

1. \_\_\_\_\_  
The diagram shows a neurone carrying an impulse.



Which row describes the type of neurone and the direction of impulse?

	type of neurone	direction of impulse
A	motor	towards the spinal cord
B	motor	away from the spinal cord
C	sensory	towards the spinal cord
D	sensory	away from the spinal cord

2. \_\_\_\_\_  
The diagram shows a neurone.



Which structures could be found at X and Y?

	X	Y
A	brain	intestine
B	brain	leg
C	eye	hand
D	skin	spinal cord

3. \_\_\_\_\_  
When a person is frightened, adrenalin is released by the adrenal glands.

What are the effects of the adrenalin?

	breathing rate	heart beat rate
A	decreased	decreased
B	decreased	increased
C	increased	decreased
D	increased	increased

4. \_\_\_\_\_  
A bright light suddenly shines into a person's eyes.

What happens?

- A The lenses become more concave.
- B The lenses become more convex.
- C The pupils become larger.
- D The pupils become smaller.

5. \_\_\_\_\_  
Which of the following can be an effector in a reflex arc?

- A a gland
- B a light receptor
- C the brain
- D the spinal cord

6. \_\_\_\_\_  
Which type of cells do all sense organs contain?

- A ciliated
- B effector
- C mesophyll
- D receptor

7. Fig. 1.1 shows the reflex arc for the knee jerk reflex.

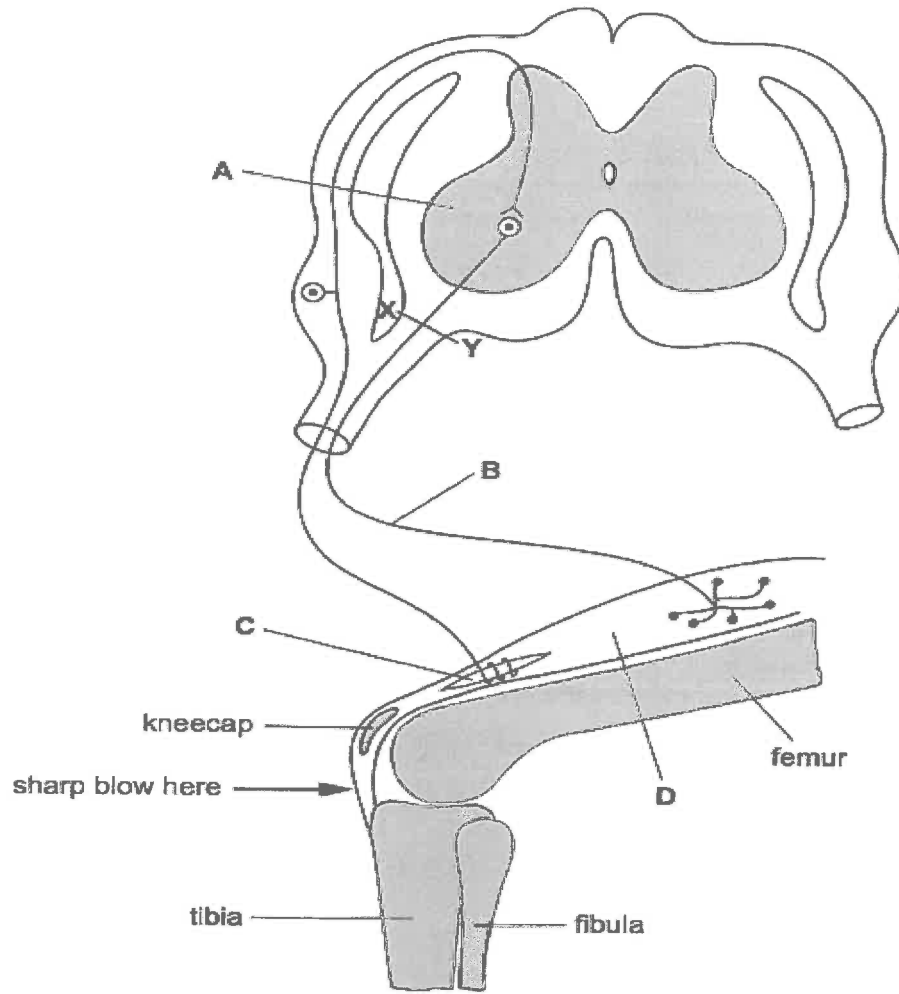


Fig. 1.1

(b) (i) Name parts A to D.

- A .....
- B .....
- C .....
- D ..... [4]

(ii) Nerve cells use active transport to move ions across their cell membranes.

Explain what is meant by the term *active transport*.

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..... [2]

(c) Explain what would happen to the reflex shown in Fig. 1.1 if the nerve was cut across at X-Y.

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..... [3]

(d) Fig. 1.2 shows the grasping reflex of a baby.

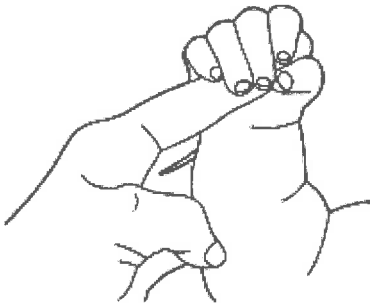


Fig. 1.2

Suggest why it is a good idea to test a baby's reflexes immediately after birth.

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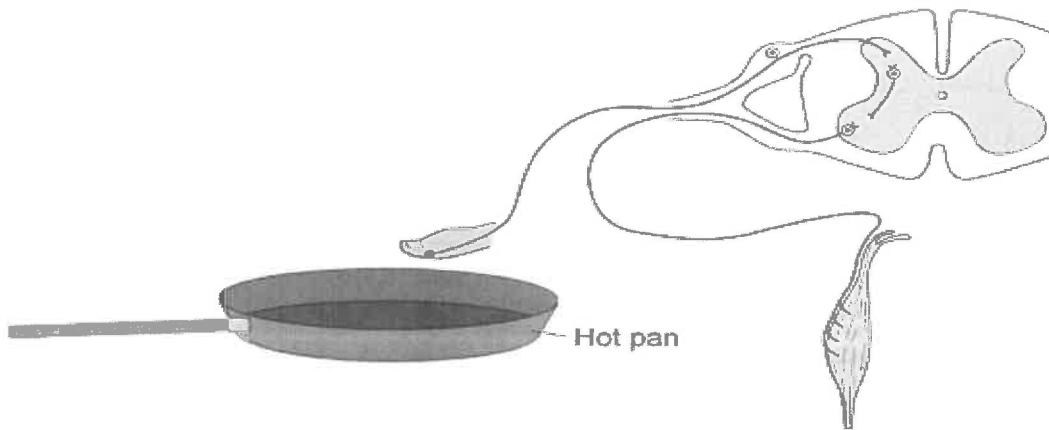
..... [1]

8.

A person accidentally touches a hot pan.

Her hand automatically moves away from the pan.

The diagram shows the structures involved in this action.



Describe fully how the structures shown in the diagram bring about this reflex action.

Describe fully how the structures shown in the diagram bring about this reflex action.

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(6)

The nerve pathway in this reflex action is about 1.5 metres in length. A nerve impulse travels at  $75 \text{ m s}^{-1}$ .

Use this information to calculate the time taken for this reflex action to occur.

Show clearly how you work out your answer.

.....

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Time interval .....s

(2 marks)

9.

Fig. 2.1 shows a section through the eye of a small mammal as viewed with a microscope.

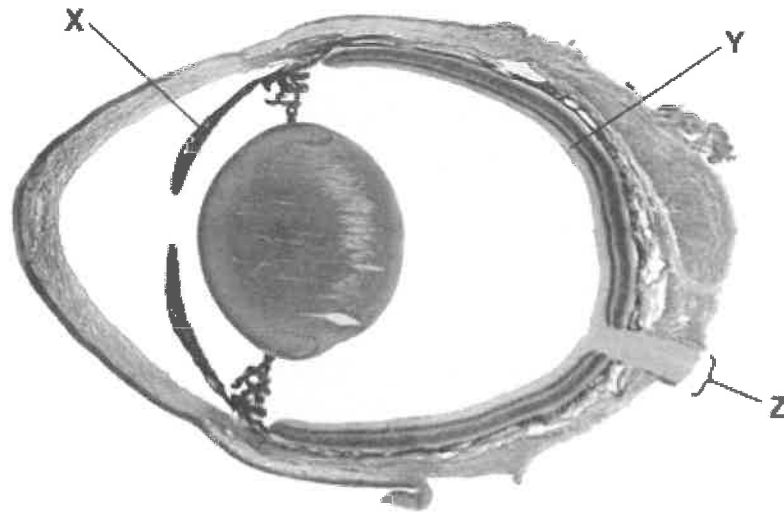


Fig. 2.1

(a) Name the structures labelled X, Y and Z.

X .....

Y .....

Z ..... [3]

10.

Fig. 9.1 shows two front views, S and T, of a human eye in two different light intensities.

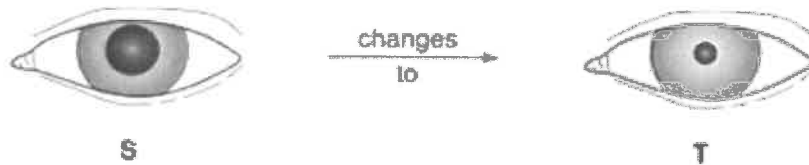


Fig. 9.1

(a) (i) Suggest how the light intensity changes from S to T.

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..... [1]

(b) The changes in the appearance of the pupil are known as the "pupil reflex".

(i) Describe the characteristics of a reflex action.

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11. Name two human sense organs and an environmental stimulus that each detects.

sense organ 1 .....

stimulus it detects .....

sense organ 2 .....

stimulus it detects ..... [2]

12. (a) Define the term *homeostasis*.

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..... [2]

(b) Fig. 2.1 shows a section through the skin.

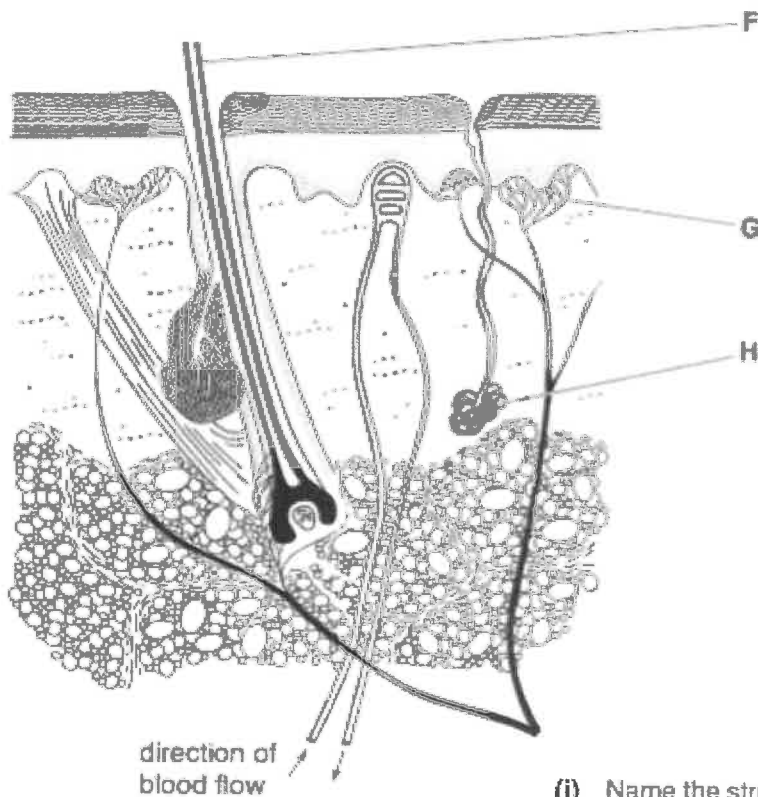


Fig. 2.1

(i) Name the structures F, G and H, shown on Fig. 2.1.

F .....

G .....

H .....

[3]

Fig. 2.2 shows the same section through the skin.

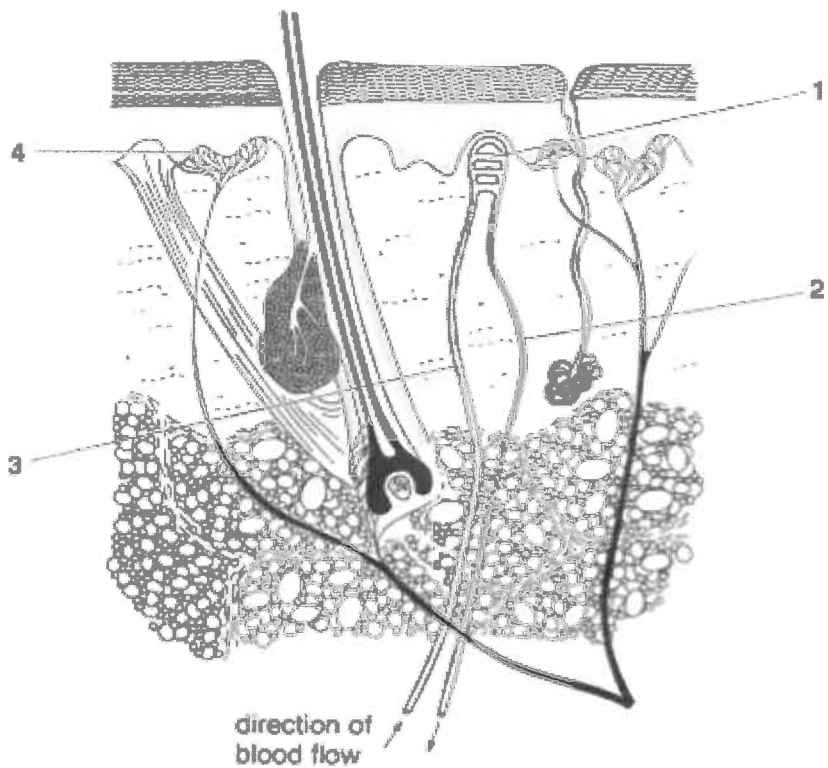


Fig. 2.2

(ii) Using Fig. 2.2, state which numbered part of the skin, 1 – 4, has the highest temperature on a cold day.

part number ..... [1]

(c) When the body temperature rises above 37 °C, two changes occur in the skin to help the temperature return to normal:

- vasodilation
- increased sweating.

Fig. 2.3 shows a simplified diagram of the skin.

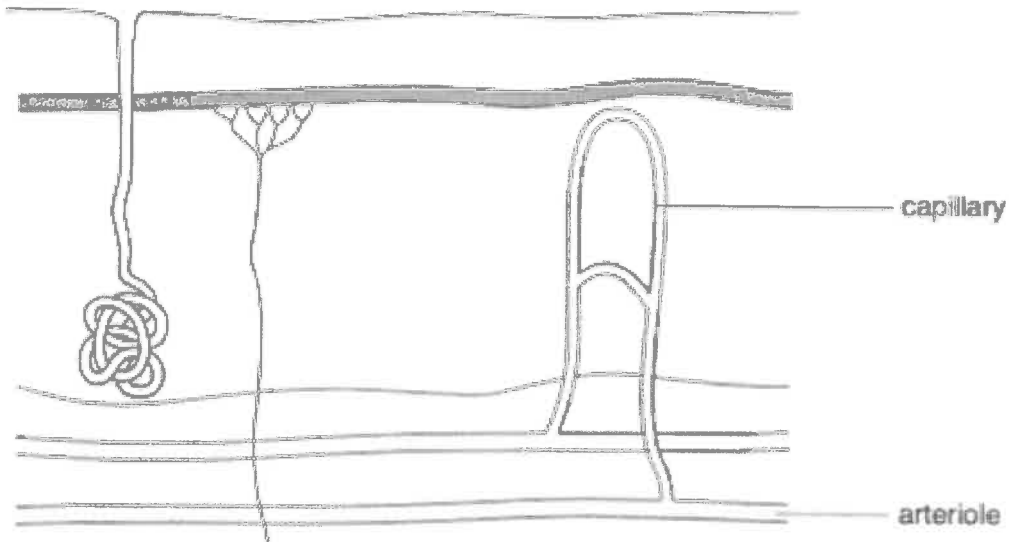


Fig. 2.3

(i) Describe what happens in vasodilation, and explain how this helps to lower body temperature.

Use Fig. 2.3 to help with your explanation.

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[3]



(ii) Explain how increased sweating helps to lower the body temperature.

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.....[3]

(iii) State two methods, other than reduced sweating, that the body uses to stop the body temperature falling below normal on a cold day.

1 .....  
2 .....  
[2]

(d) Name the part of the body which coordinates the changes in the skin to keep the body temperature at 37 °C.

.....[1]

[Total: 15]