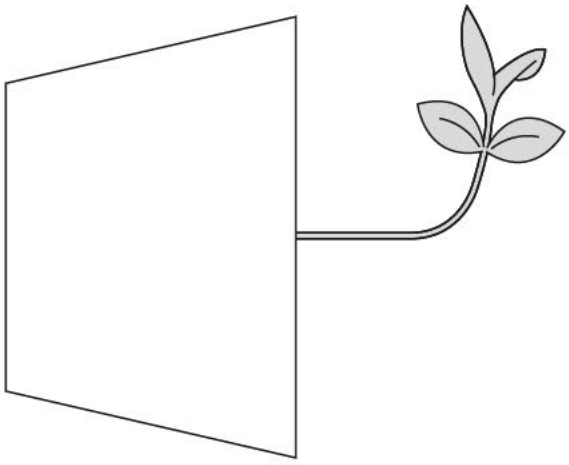
1 Flowering plants can respond to their environment through tropic responses. These involve root or shoot tips growing towards or away from a stimulus.

A student set up an experiment to investigate how shoots respond to gravity.

He placed a potted plant on its side and looked at its growth after 5 days. The diagram shows what he saw.



(a) (i) Explain the benefit to the plant of this response.

(1)

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(ii) Give one variable that the student should keep the same in his experiment and suggest how he could do this.

(2)

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(iii) Suggest a suitable control for this experiment.

(1)

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(b) Plants can respond to drought by closing their stomata.

(i) Suggest how a plant benefits from closing its stomata when less water is available in the soil.

(1)

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(ii) Explain the disadvantages to the plant of closing its stomata.

(2)

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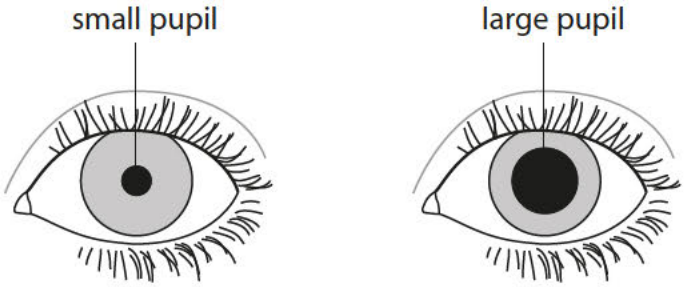
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(Total for Question = 7 marks)

2 The diagram shows the difference in the pupil diameter of the eye in bright light and after moving into dim light. The difference is caused by a reflex action.



Bright light **Dim light**

(a) The table gives descriptions of parts of the reflex arc involved with the reflex action.

Complete the table by naming each part.

One has been done for you.

(3)

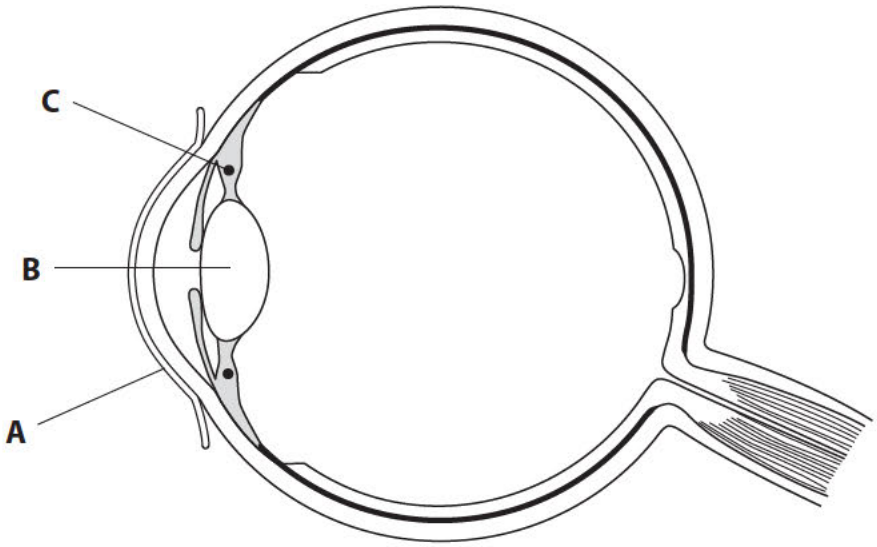
Description of part	Name
contains light receptor cells	
neurone that sends impulses into the brain	
microscopic gap between neurones	
contains muscle effector cells	iris

(b) Explain how the lens changes when you view a near object.

(4)

(Total for Question = 7 marks)

3 The diagram shows a section through the human eye.



(a) Name the structures labelled **A**, **B** and **C**.

(3)

A .....

B .....

C .....

(b) Explain the changes that take place in structures **B** and **C** when a person focuses on a nearby object.

(2)

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(c) Structures in the eye respond to stimuli by means of reflex actions.

(i) Describe **one** reflex action that occurs in the eye.

(2)

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(ii) Give a reason for this reflex action.

(1)

.....

.....

(iii) Human responses are also controlled by hormones.

For **one** named example of a hormone, give its site of production and its effect.

(3)

Hormone .....

.....

Site of production .....

.....

Effect .....

.....

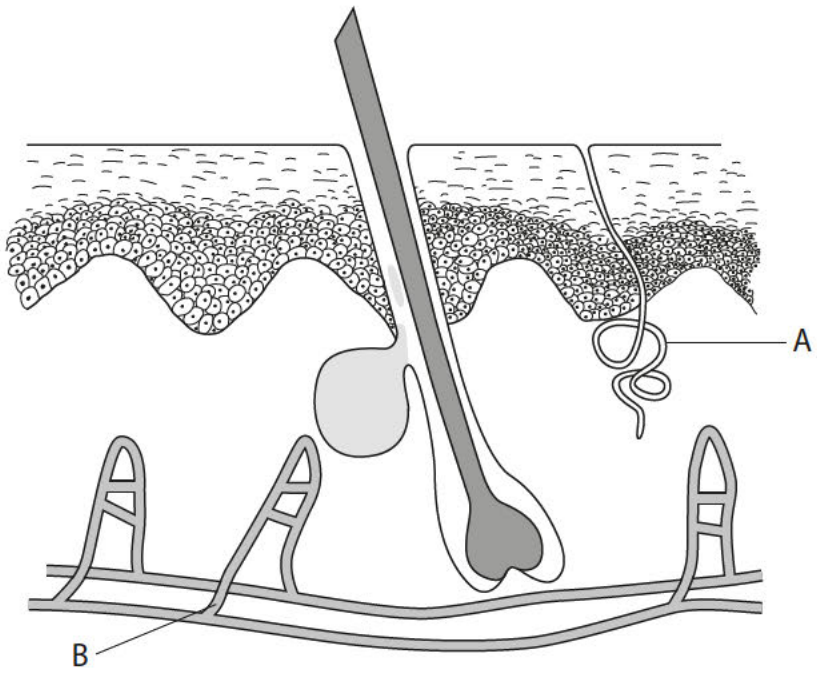
(Total for Question = 11 marks)

4 The skin is an organ of homeostasis and excretion.

(a) Describe what is meant by the term **excretion**.

(2)

(b) The diagram shows a section through the skin with two structures labelled A and B.



The structures labelled A and B play a part in homeostasis when a person enters a very warm environment.

(i) Explain the role of structure A.

(3)

(ii) Explain the role of structure B.

(3)

(c) Some hormones are involved in homeostasis.

(i) Explain the role of insulin in homeostasis.

(2)

(ii) Explain the role of ADH in homeostasis.

(3)

(Total for Question = 13 marks)