

GCSE Biology B (Twenty First Century Science)
J257/01 Breadth in Biology (Foundation)

Question Set 1

Multiple Choice Questions

1 The eye is a sense organ.

(a) Each part of the eye is adapted to its specific function.

The table describes the functions of different parts of the eye.

Complete the table by writing the **part of the eye** that matches each **description**.
Choose from the words below:

ciliary muscle cornea iris lens

Part of the eye	Description
	A ring of tissue that changes size to alter the diameter of the pupil, to control the amount of light entering the eye.
	A thin layer of transparent tissue in front of the pupil which bends light as it enters the eye.
	A thick layer of transparent tissue behind the pupil which bends light so it focusses on the retina.
	Changes the thickness of the lens to focus light from far and near objects.

[3]

(b) Amir is investigating what happens to pupil size when a person moves from an area of bright light to an area of darkness.

He measures the size of his friend's pupil in bright light.

His results are shown in the table below.

Experiment number	Pupil size (mm)
1	4.0
2	3.8
3	6.0

(i) Calculate the mean pupil size

Mean pupil size = mm [2]

(ii) Amir reads an article that suggests the average pupil size in bright light should be in the range of 2 – 4 mm.

Amir thinks one of his results is an anomalous result.

Which result is most likely to be the anomalous result?

Give a reason for your choice.

[2]

- (iii) What can Amir do to make his results more precise? [1]
- (iv) To create dark conditions Amir asks his friend to put on sunglasses.

Amir draws two diagrams (**Fig. 1.1** and **Fig. 1.2**) to show how the pupil changes when the light conditions change.

Fig. 1.2 is incomplete.

Complete **Fig. 1.2** to show the pupil in dark conditions.

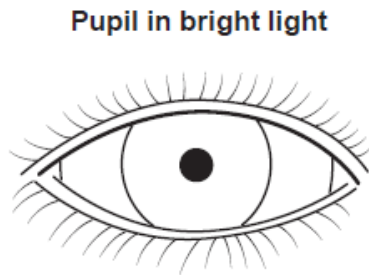


Fig. 1.1

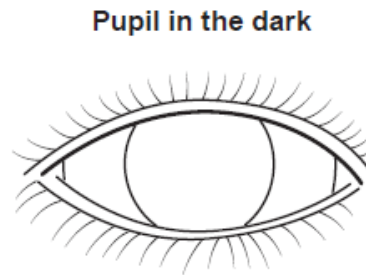


Fig. 1.2

- (v) The change in pupil size is an example of a reflex. [1]

Which statement best describes a reflex?

Tick (✓) **one** box.

A rapid and involuntary response.

A rapid and voluntary response.

A slow and involuntary response.

A slow and voluntary response.

- (vi) What name is given to the structure that transmits electrical impulses from the eye to the central nervous system? [1]

Put a ring around the correct answer.

effector **receptor** **relay neuron** **sensory neuron**

- (c) Amir is reading a newspaper but the words look blurry. [1]

When he looks out the window he can see everything outside clearly.

Explain to Amir why the words in the newspaper look blurry and explain how this defect could be corrected.

[3]

Total Marks for Question Set 1: 14

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