

Sense organs: practice questions

7 questions • 24 marks • mark scheme at the back

For Cambridge IGCSE Biology 0610 (and 0970, which has the same content). **Supplement** is Extended content, only examined on Papers 2 and 4.

Name

Total / 24

1 Which part of the eye has no light receptors because the optic nerve leaves the eye there? [1 mark]

- A. ☐ Pupil
- B. ☐ Cornea
- C. ☐ Blind spot
- D. ☐ Iris

2 State the function of each of these parts of the eye. (a) cornea [1] (b) iris [1] (c) lens [1] (d) optic nerve [1] [4 marks]

3 A person walks from a dim room into bright sunlight. Explain what happens to the pupil. [3 marks]

4 **Supplement** [4 marks]

Explain how the muscles in the iris cause the pupil to become wider in dim light.

A person looks at a near object. Which row shows what happens in the eye?

- A. ☐ ciliary muscles contract; suspensory ligaments slack; lens thicker
- B. ☐ ciliary muscles contract; suspensory ligaments tight; lens thinner
- C. ☐ ciliary muscles relax; suspensory ligaments slack; lens thicker
- D. ☐ ciliary muscles relax; suspensory ligaments tight; lens thinner

A person looks at a book, then looks up at a tree far away. Explain how the eye changes to focus on the tree.

(a) State the function of the fovea. [1] (b) Rods and cones are light receptors in the retina. Explain why it is difficult to see colours in very dim light. [3] (c) Describe the distribution of rods and cones in the human retina. [2]

Mark scheme

One mark for each point unless a maximum is given. Words in brackets are not needed for the mark.

1. [1]

C C (1)

2. [4]

- (a) refracts light (1) allow bends light / begins to focus light
- (b) controls how much light enters the pupil / eye (1) ignore controls the size of the pupil unless linked to light
- (c) focuses light on to the retina (1)
- (d) carries impulses to the brain (1) allow electrical signals; reject carries images / light / messages to the brain

3. [3]

- the pupil gets smaller / diameter decreases / constricts (1)
- so less light enters the eye (1)
- this protects the retina from damage (1) allow reflex is automatic / rapid

4. [4] **Supplement**

- radial muscles contract (1)
- circular muscles relax (1)
- the muscles are antagonistic / work against each other (1)
- so pupil diameter increases / pupil dilates and more light enters the eye (1)

5. [1] **Supplement**

A A (1)

6. [5] **Supplement**

- ciliary muscles relax (1)
- tension in the suspensory ligaments increases / ligaments pulled tight (1) reject suspensory ligaments contract / relax
- lens becomes thinner / less curved (1)
- light is refracted less (1)
- light is focused on the retina (1)

7. [6] **Supplement**

- (a) gives the sharpest vision / vision in the greatest detail (1) allow area with the highest density of cones
- (b) colour vision depends on cones (1)
- (b) there are three kinds of cone absorbing light of different colours (1)
- (b) cones are less sensitive to light than rods / rods are used for night vision (1) allow cones do not work in dim light
- (b) rods do not give colour vision / there is only one type of rod (1)
- (b) Max 3
- (c) cones are concentrated in the fovea (1)
- (c) rods are spread over the rest of the retina, more towards the edges / there are no rods in the fovea (1) ignore no receptors at the blind spot