

## 14.2 Sense organs

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

Total: 7 marks

**KEY WORDS** retina 视网膜 • eye 眼 • iris 虹膜 • cones 视锥细胞 • rods 视杆细胞

### Objective

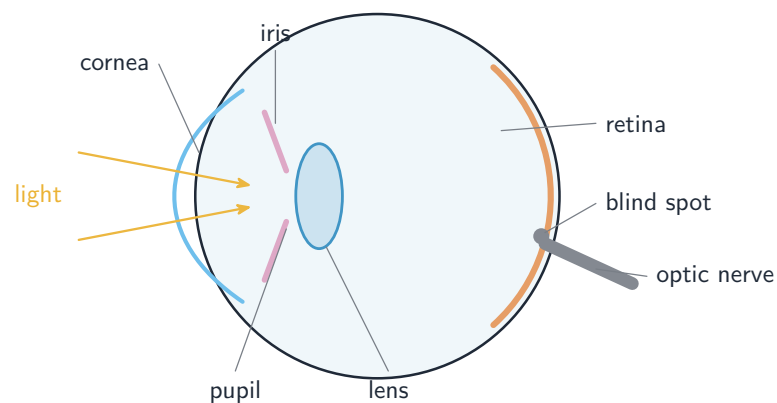
Build the skills to answer exam questions on **sense organs** 感觉器官 — the parts of the **eye** 眼, the **pupil reflex** 瞳孔反射, **accommodation** 视觉调节, and rods and cones.

**You must be able to:**

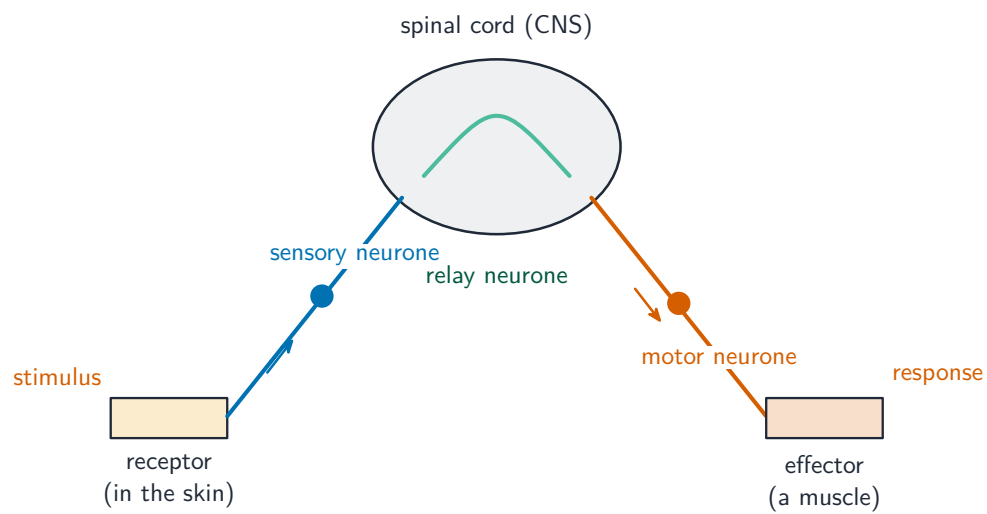
- name the parts of the eye and their functions
- explain the pupil reflex (antagonistic muscles)
- describe accommodation and the roles of rods and cones

### 1 Worked examples

#### ■ The eye



*Cornea and lens refract light onto the retina; impulses leave by the optic nerve*



*Sense organs feed the reflex arc*

- **pupil reflex:** bright light → circular muscles contract → pupil narrows.
- **accommodation:** near object → ciliary muscles contract → lens fatter.
- **rods:** dim light (no colour); **cones:** colour, bright light.

## 2 Practice

2.1 State the function of the retina.

[1]

2.2 State what happens to the pupil in bright light.

[1]

### 3 Exam-style questions

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**3.1** The part of the eye that focuses light onto the retina is the: [1]

- **A** iris
  - **B** cornea only
  - **C** lens
  - **D** optic nerve
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**3.2** The pupil changes size in different light.

(a) Explain how the pupil narrows in bright light. [2]

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(b) State the difference between rods and cones. [2]

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## Solutions

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**2.1** it contains light receptors that detect light.

**2.2** it gets smaller (narrows).

**3.1 C.** The lens focuses light onto the retina.

**3.2 (a)** the circular muscles of the iris contract; the radial muscles relax, so the pupil narrows.

(b) rods are sensitive in dim light but detect no colour; cones give colour vision and work best in bright light.