

14.1 Coordination and response

Name: _____ Class: _____ Date: _____

Total: 8 marks

KEY WORDS synapse 突触 • receptor 感受器 • effector 效应器 • neurones 神经元 • response 反应

Objective

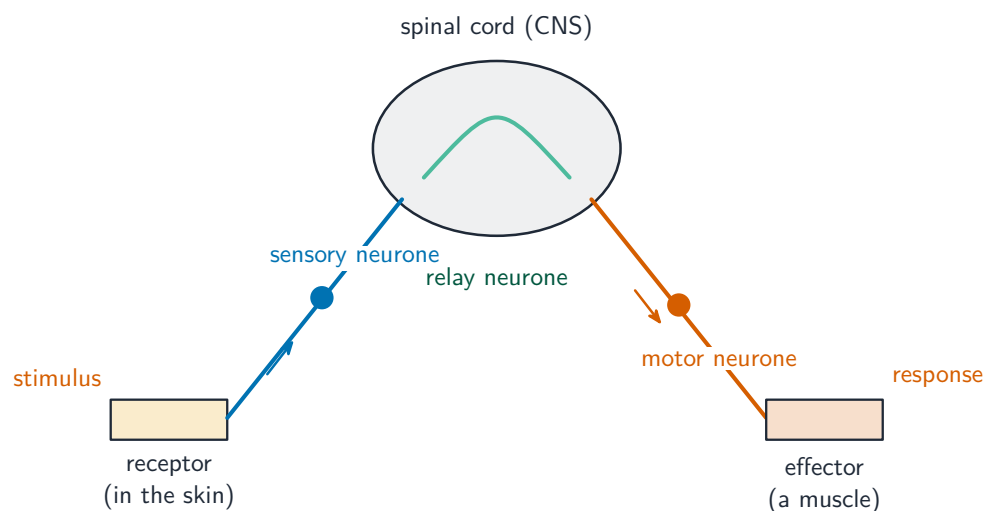
Build the skills to answer exam questions on **coordination and response** 协调与反应 — the **nervous system** 神经系统, the **reflex arc** 反射弧, and **synapses** 突触.

You must be able to:

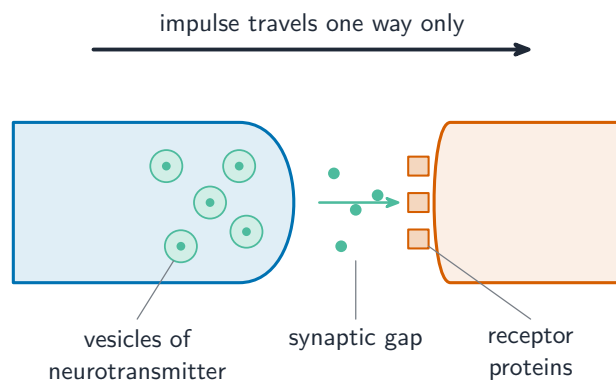
- name the parts of the nervous system and the three neurones
- describe a reflex arc in order
- describe how a synapse works and why impulses go one way

1 Worked examples

■ Reflex arc and synapse



Reflex arc: receptor → sensory neurone → relay neurone → motor neurone → effector



Neurotransmitter diffuses across the gap and binds receptors — impulses go one way only

- **CNS** = brain + spinal cord; **PNS** = the nerves.

2 Practice

2.1 Name the two parts of the central nervous system.

[2]

2.2 State the job of a motor neurone.

[1]

3 Exam-style questions

3.1 The correct order of a reflex arc is:

[1]

- **A** receptor → motor → relay → sensory → effector
- **B** receptor → sensory → relay → motor → effector
- **C** effector → motor → relay → sensory → receptor
- **D** receptor → relay → sensory → motor → effector

3.2 A synapse joins two neurones.

(a) Describe how an impulse crosses a synapse.

[3]

(b) Explain why a synapse makes impulses travel in one direction only. [1]

Solutions

2.1 the brain; the spinal cord.

2.2 to carry impulses from the CNS to an effector.

3.1 B. receptor → sensory → relay → motor → effector.

3.2 (a) the impulse makes vesicles release neurotransmitter into the gap; the neurotransmitter diffuses across; it binds receptors on the next neurone, starting a new impulse.

(b) only the first neurone releases neurotransmitter and only the second has receptors.