

The Nervous System

Chapter 6: Control and Coordination · Topic 1

Key Concept

For example, touching a hot object triggers a reflex arc: a receptor in the skin detects heat, sending a signal through a sensory neuron to the spinal cord, which immediately sends a signal through a motor neuron to the arm muscles, causing withdrawal — all before the brain has even fully processed the sensation of pain, protecting the body from prolonged injury. The brain itself has specialised regions: the cerebrum controls voluntary actions and thought, the cerebellum coordinates balance and muscle coordination, and the medulla oblongata controls involuntary functions like breathing and heart rate.

Quick Revision Notes

- The nervous system (brain, spinal cord, nerves) coordinates body activities via electrical impulses.
- A reflex arc allows fast, involuntary responses that bypass conscious brain processing.
- Reflex example: touching something hot triggers immediate withdrawal via the spinal cord.
- Brain regions: cerebrum (voluntary actions/thought), cerebellum (balance/coordination), medulla (involuntary functions).

Practice Questions

- 1 Draw a simple diagram of a reflex arc.
- 2 Explain why a reflex action occurs faster than a consciously thought-out response.
- 3 Name the brain region responsible for voluntary actions and thought.