

CLASS 11

BIOLOGY

EXTRA QUESTIONS

Class 11 Biology Chapter 18 Neural Control and Coordination – Extra Questions with Answers

Extra practice questions for Class 11 Biology Chapter 18 (Neural Control and Coordination), beyond the textbook. These Class 11 Biology Chapter 18 important questions are handy for last-minute exam practice.

Contents

- Very Short Answer Questions (1 mark)
- Short Answer Questions (2–3 marks)
- Higher-Order Thinking / Application Questions
- Class 11 Biology Chapter 18 – Solutions and Notes

Extra practice questions for Class 11 Biology Chapter 18 (Neural Control and Coordination), beyond the textbook. These Class 11 Biology Chapter 18 important questions are handy for last-minute exam practice.

Very Short Answer Questions (1 mark)

Q1. What is the approximate resting membrane potential of a neuron?

Ans: About -70 mV.

Q2. Name the part of the brain responsible for coordination and balance.

Ans: Cerebellum.

Q3. Name a common neurotransmitter.

Ans: Acetylcholine.

Q4. What is the space between two neurons at a synapse called?

Ans: Synaptic cleft.

Q5. What ion rushes out of the neuron during repolarization?

Ans: Potassium (K^+).

Short Answer Questions (2–3 marks)

Q6. Describe the path of a reflex arc.

Ans: Receptor $\rightarrow$ sensory (afferent) neuron $\rightarrow$ relay in spinal cord $\rightarrow$ motor (efferent) neuron $\rightarrow$ effector (muscle/gland).

Q7. Differentiate between the sympathetic and parasympathetic nervous systems.

Ans: Sympathetic prepares the body for “fight or flight” (increases heart rate, dilates pupils); parasympathetic promotes “rest and digest” (decreases heart rate, stimulates digestion).

Q8. What maintains the resting membrane potential of a neuron?

Ans: The sodium-potassium ($Na^+ - K^+$) pump, which actively transports 3 Na^+ out for every 2 K^+ in, maintaining an unequal ion distribution.

Higher-Order Thinking / Application Questions

Q9. Explain, using the concept of the reflex arc, why a person reflexively withdraws their hand from a hot object before they consciously feel the sensation of pain, connecting this to the anatomical pathway involved.

Ans: When a receptor detects a potentially damaging stimulus, the sensory neuron carries this signal directly to the spinal cord, where it synapses with a relay/interneuron connecting to a motor neuron, which directly stimulates the muscle to withdraw the hand — this reflex arc operates at the spinal cord level alone, without the signal first travelling to the brain for conscious processing. Because this pathway is anatomically shorter and involves fewer synapses than the pathway required for sensory information to reach the brain’s sensory cortex (where conscious pain is perceived), the motor response is triggered and executed before the sensory signal reaches the brain, which is why the hand jerks away seemingly instantly, with conscious pain registering only afterward.

Q10. Explain why nerve impulses in myelinated axons travel significantly faster than in unmyelinated axons, describing saltatory conduction and the role of the nodes of Ranvier.

Ans: In an unmyelinated axon, the action potential must be regenerated continuously at every point along

the axon membrane, spreading as a relatively slow, continuous wave. In a myelinated axon, insulating myelin sheath segments cover the axon except at small gaps called nodes of Ranvier, where ion channels are densely packed. Because myelin insulates the membrane beneath it, the electrical signal generated at one node jumps rapidly via passive current spread to the next node, where a new action potential is regenerated. This saltatory conduction is faster (passive spread between nodes is quicker than continuous regeneration) and more energy-efficient (active ion pumping only needed at nodes), which is why myelinated axons conduct impulses significantly faster than unmyelinated ones of the same diameter.

Class 11 Biology Chapter 18 – Solutions and Notes

For complete step-by-step answers and a quick summary, check the [Class 11 Biology Chapter 18 Solutions](#) and [Class 11 Biology Chapter 18 Revision Notes](#).

See also: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#) | [Chapter 7](#) | [Chapter 8](#) | [Chapter 9](#) | [Chapter 10](#) | [Chapter 11](#) | [Chapter 12](#) | [Chapter 13](#) | [Chapter 14](#) | [Chapter 15](#) | [Chapter 16](#) | [Chapter 17](#) | [Chapter 18](#)

Practice more: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#) | [Chapter 7](#) | [Chapter 8](#) | [Chapter 9](#) | [Chapter 10](#) | [Chapter 11](#) | [Chapter 12](#) | [Chapter 13](#) | [Chapter 14](#) | [Chapter 15](#) | [Chapter 16](#) | [Chapter 17](#)

Quick revision: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#) | [Chapter 7](#) | [Chapter 8](#) | [Chapter 9](#) | [Chapter 10](#) | [Chapter 11](#) | [Chapter 12](#) | [Chapter 13](#) | [Chapter 14](#) | [Chapter 15](#) | [Chapter 16](#) | [Chapter 17](#)