CBSE Important Questions for Class 10 Science Chapter 7: Here are the CBSE Important Questions for Class 10 Science Chapter 7 Control and Coordination provide a valuable resource for students preparing for their board exams. These questions cover important topics like the nervous system, hormones in animals and coordination in plants, giving students a clear understanding of the chapter's crucial concepts.

Practicing these questions helps strengthen knowledge, improves problem-solving skills and boosts confidence for the exam. These important questions are based on the latest CBSE exam pattern, ensuring students are well-prepared for the types of questions they might face in the final exam.

CBSE Important Questions for Class 10 Science Chapter 7 Overview

These questions are created by subject experts of Physics Wallah for CBSE Important Questions for Class 10 Science Chapter 7, which is about Control and Coordination. By practicing these questions, students can enhance their preparation for board exams and develop a deeper understanding of how control and coordination work in both plants and animals.

CBSE Important Questions for Class 10 Science Chapter 7 PDF

The PDF link for CBSE Important Questions for Class 10 Science Chapter 7 is available below. This resource contains a important questions that will help students grasp the key concepts of the chapter on Control and Coordination.

By downloading and studying this PDF students can enhance their understanding and prepare effectively for their exams.

CBSE Important Questions for Class 10 Science Chapter 7 PDF

CBSE Important Questions for Class 10 Science Chapter 7 Control and Coordination

Here we have provided CBSE Important Questions for Class 10 Science Chapter 7 Control and Coordination -

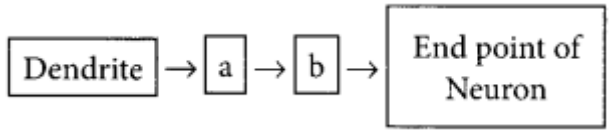
Question 1. Which is the largest and most prominent part of the brain? (Board Term I, 2013)

Answer:

The Cerebrum is the largest and most prominent part of the brain.

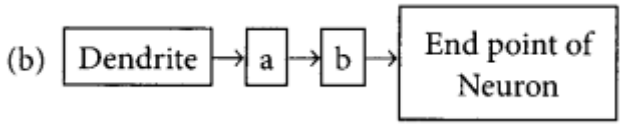
Question 2.

(a) Name one gustatory receptor and one olfactory receptor in human beings.
(b) Write a and b in the given flow chart of neuron through which information travels as an electrical impulse.



Answer:

(a) Gustatory receptors are receptors for taste present in taste buds on tongue and olfactory receptors are the receptors for smell present in nasal chambers.



In the given flow chart, a is cyton and b is axon.

Question 3. Write the main functions of the following :

(a) sensory neuron
(b) cranium
(c) vertebral column
(d) motor neuron. (Board Term I, 2017)

Answer:

(a) **Sensory neuron:** Sensory neurons are found in sense organs and receive stimuli through their dendrites. They transmit impulses toward the central nervous system (CNS), which includes the brain and spinal cord, using their axons.

(b) **Cranium:** The cranium, or brain box, consists of bones that protect the brain from mechanical injury.

(c) **Vertebral column:** The main function of the vertebral column is to protect the spinal cord and support the weight of the upper body.

(d) **Motor neuron:** Motor neurons have dendrites that synapse with axons of interneurons in the central nervous system. They transmit impulses from the central nervous system to effectors, such as muscles or glands, which then respond to stimuli.

Question 4. Why does the flow of signals in a synapse from axonal end of one neuron to dendritic end of another neuron take place but not in the reverse direction? Explain. (AI 2019)

Answer:

In a synapse, which is the functional junction between neurons, the axon terminal of one neuron (the presynaptic neuron) comes close to the dendritic terminal of the next neuron (the postsynaptic neuron). The axon terminal is enlarged, forming a structure called the presynaptic knob, while the dendrite terminal is involved in receiving signals.

Between these two structures lies a narrow fluid-filled space called the synaptic cleft. When a nerve impulse reaches the presynaptic knob, it triggers synaptic vesicles to release neurotransmitters into the synaptic cleft. These neurotransmitter molecules then diffuse across the cleft and bind to receptors on the postsynaptic membrane, stimulating the dendron of the next neuron.

This process creates a one-way flow of impulses. The neurotransmitters are released only from the presynaptic side of the synapse, which is why signals can only travel from the axon of one neuron to the dendron of another. As a result, impulses cannot flow in the reverse direction, ensuring that signals are transmitted in one direction only.

Question 5. “Reflex arcs continue to be more efficient for quick responses”. Justify this statement giving reason. (Board Term I, 2017)

Answer:

A reflex action is an automatic and spontaneous response to a stimulus. The pathway taken by nerve impulses during a reflex action is known as a reflex arc. This arc consists of several components: a receptor, a sensory nerve (afferent), the spinal cord, a motor nerve (efferent), and an effector (muscles or glands).

Reflex arcs have evolved in animals because the brain's thinking process is not fast enough to respond immediately to certain stimuli. When a harmful stimulus occurs, the reflex arc allows the body to react quickly, reducing the chances of injury or damage. For instance, if you touch something hot, the reflex arc enables you to withdraw your hand before the brain fully processes the pain.

Additionally, reflex arcs help prevent the overload of the brain, thereby reducing fatigue. Many simpler animals possess little or no complex neuron networks necessary for higher-order thinking. In these cases, reflex arcs serve as an efficient way to function and respond to the environment without the need for conscious thought.

Even in more complex organisms, reflex arcs remain the quickest method for responses, bypassing the slower cognitive processes in the brain. This efficiency is why reflex arcs continue to be critical for rapid responses to potentially harmful situations.

Question 6.

(a) Define reflex arc.
(b) Trace the sequence of events which occur in our body when a bright light is focussed on your eyes. (Board Term I, 2016)

Answer:

(a) A reflex arc is the pathway taken by nerve impulses during a reflex action, which travels from a receptor organ to the spinal cord and back to an effector organ. The receptor organ can be a sense organ, such as the eyes or skin, while the effector organ can be muscles or glands that carry out the response.

(b) When a bright light is focused on the eyes, the following sequence of events occurs:

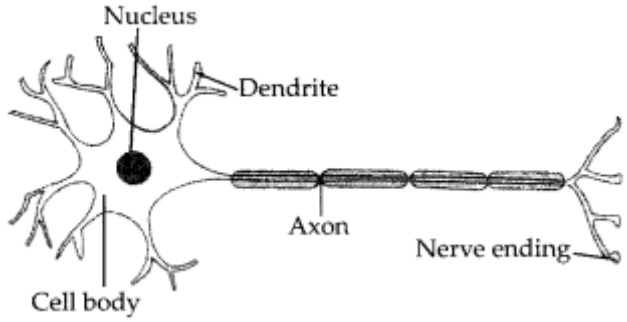
1. **Stimulus Reception**: The photoreceptors in the retina of the eye detect the bright light, generating an electrical impulse.
2. **Transmission to Sensory Neuron**: This impulse is transmitted through sensory neurons towards the brain.
3. **Processing in the Brain**: The impulse reaches the brain, where it is processed and interpreted.
4. **Transmission to Motor Neuron**: The brain then sends an impulse through motor neurons back to the eye.
5. **Action by Eye Muscles**: The motor neurons stimulate the muscles controlling the pupil, causing them to contract.
6. **Response**: As a result, the pupils constrict, reducing the amount of light entering the eye and protecting the retina from potential damage.

This sequence of events can be summarized as: Photoreceptors in the eye → Sensory (Receptor) neuron → Brain → Motor (Effector) neuron → Eye muscles → Constriction of pupils.

Question 7. (a) Draw a neat diagram of a neuron and label (i) dendrite and (ii) axon.
(b) Which part of the human brain is:
(i) the main thinking part of the brain?
(ii) responsible for maintaining the posture and balance of the body? (Board Term I, 2015)

Answer:

(a) Diagrammatic representation of a neuron is as follows:



(b) (i) Forebrain which includes cerebrum, olfactory lobes and diencephalon, is the main thinking part of the brain.
(ii) Cerebellum, part of hindbrain is responsible for maintaining the posture and balance of the body.

Question 8. Mention three major regions of brain. Write one function of each. (Board Term I, 2014)

Answer:

The brain is divided into three major regions: the forebrain, midbrain, and hindbrain. Each region has specific functions:

1. **Forebrain**: This region includes the cerebrum, olfactory lobes, and diencephalon. Its main function is to facilitate higher cognitive functions such as thinking, and it also controls various activities related to touch, smell, hearing, speech, and sight.
2. **Midbrain**: The midbrain is responsible for controlling reflex movements of the head, neck, and trunk in response to visual and auditory stimuli. It plays a crucial role in processing sensory information.
3. **Hindbrain**: The hindbrain consists of three parts: the pons, cerebellum, and medulla. It is responsible for regulating vital functions such as respiration, maintaining posture and balance, and controlling involuntary actions like heartbeat, breathing, swallowing, coughing, sneezing, and vomiting.

Question 9. State one example of chemotropism. (Board Term I, 2015)

Answer:

An example of chemotropism is the growth of the pollen tube towards the ovule due to a chemical stimulus during the process of fertilization in a flower.

Question 10. What is meant by tropic movements? (Board Term I, 2013)

Answer:

Tropic movements, also known as tropisms, refer to the directional movements or orientations of specific parts of a plant in response to external stimuli. These movements can be toward or away from the stimulus and include responses to factors such as light (phototropism), gravity (geotropism), and chemicals (chemotropism).

Question 11. State the two types of movements seen in plants. Give one example of each type. (Board Term I, 2016)

Answer:

Two types of movements seen in plants are:

(i) **Nastic movements**: These are movements that are independent of growth, non-directional, and occur due to changes in turgor pressure. An example of this is the closing of leaves in response to touch in the *touch-me-not* plant (Mimosa pudica).

(ii) **Tropic movements** (or tropisms): These are growth-related movements that are directional and occur slowly. An example of this is the movement of a plant part towards light (phototropism).

Question 12. Define geotropism. Draw a labelled diagram of a plant showing geotropic movement of its parts. (2020)

Answer:

Geotropism refers to the upward and downward growth of shoots and roots respectively in response to the pull of earth or gravity. If the plant part moves in the direction of gravity, it is called positive geotropism. Likewise, if the plant part moves against the direction of gravity, it is termed as negative geotropism. Shoots are usually negatively geotropic and roots are usually positively geotropic. A well labelled diagram of plant showing geotropism is:

Benefits of CBSE Important Questions for Class 10 Science Chapter 7

- **Focused Revision**: The important questions help students focus their study efforts on key concepts and topics that are likely to appear in the exam making their revision more effective.
- **Practice for Exam Format**: By practicing these questions students become familiar with the exam format and types of questions they may face reducing anxiety and improving confidence.
- **Enhanced Problem-Solving Skills**: Working through important questions helps students develop critical thinking and problem-solving abilities which are important for science subjects.
- **Self-Assessment**: Students can use these questions to assess their understanding and identify areas where they need further improvement allowing for targeted study.
- **Time Management Skills**: Practicing these questions enables students to improve their time management skills helping them learn to allocate their time effectively during exams.