

1. What is the difference between a reflex action and walking?

Reflex actions are automatic and happen without us thinking — like pulling your hand back from something hot. They don't involve the conscious part of the brain and are controlled by the spinal cord.

Walking, on the other hand, is a voluntary action. It's something we learn as we grow and is controlled by the brain. We can choose when and how to walk.

2. What happens at the synapse between two neurons?

At the synapse (the gap between two neurons), electrical signals are changed into chemical signals. These chemical messengers cross the gap and then get converted back into electrical signals in the next neuron.

3. Which part of the brain maintains the posture and balance of the body?

The **cerebellum** is the part of the brain that controls movement, balance, and posture.

4. How do we detect the smell of an agarbatti (incense stick)?

The smell is detected by the **nose**, which has special smell receptors. These receptors send signals to the forebrain, which identifies the smell as that of an incense stick.

5. What is the role of the brain in reflex action?

Reflex actions happen instantly through the spinal cord, without the brain's direct involvement. However, the brain receives the information later and remembers it — so that we become aware of the situation and can avoid danger in the future.

Page no-108**1. What are plant hormones?**

Plant hormones are natural substances made by plants that help control growth, development, and responses to the environment. Examples

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include **auxins, gibberellins, cytokinins, abscisic acid, and ethylene.**

2. How is the movement of leaves of a sensitive plant different from the movement of a shoot towards light?

Sensitive Plant

Does not depend on direction of stimulus

Nastic movement

Stimulus is touch

Happens due to sudden loss of water in leaf base

Not a growth movement

Happens quickly

Shoot Towards Light

Depends on direction of light

Tropic movement

Stimulus is light

Happens due to uneven growth on both sides of shoot

Is a growth movement

Happens slowly

3. Give an example of a plant hormone that promotes growth.

Auxins and Gibberellins help plants grow.

Auxins help in cell elongation and growth, while Gibberellins promote stem elongation and seed germination.

4. How do auxins promote the growth of a tendril around a support?

Auxins are present at the tips of tendrils. When a tendril touches a support, the auxin level decreases on the side in contact and increases on the opposite side. The outer side then grows faster, making the tendril bend and wrap around the support.

5. Design an experiment to demonstrate hydrotropism.

Steps:

1. Plant a seedling in soil inside a pot.
2. Keep a porous pot filled with water next to it.
3. Leave it for a few days.

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**Observation:**

The roots grow and bend towards the pot containing water.

Conclusion:

This shows **hydrotropism**, where roots grow towards moisture.

Page no-111**1. How does chemical coordination take place in animals?**

Animals use **hormones** — special chemicals produced by endocrine glands — for chemical coordination. These hormones control growth, development, and the body's internal balance.

2. Why is the use of iodized salt advisable?

Iodized salt helps prevent **iodine deficiency**, which can reduce the production of **thyroxine** in the thyroid gland. Low thyroxine affects metabolism and can cause **goitre** (swelling in the neck).

3. How does our body respond when adrenaline is secreted into the blood?

When adrenaline is released, our body gets ready for action. The heartbeat becomes faster, blood pressure rises, breathing speeds up, and more glucose is released into the blood. This helps us react quickly in stressful situations.

4. Why are some patients of diabetes treated by giving injections of insulin?

In diabetes, the pancreas doesn't make enough **insulin**, a hormone that controls blood sugar. Without enough insulin, glucose levels rise. Injecting insulin helps keep blood sugar at a healthy level.

exercise**1. Which of the following is a plant hormone?**

(a) Insulin (b) Thyroxin (c) Oestrogen (d) Cytokinin

Answer: (d) Cytokinin

2. The gap between two neurons is called:

(a) Dendrite (b) Synapse (c) Axon (d) Impulse

Answer: (b) Synapse

3. The brain is responsible for:

(a) Thinking (b) Regulating heartbeat (c) Balancing the body (d) All of the above

Answer: (d) All of the above

4. What is the function of receptors in our body?

Receptors are found in our sense organs. They detect changes around us — like light, sound, or touch — and send this information to the brain. If receptors don't work properly, we won't be able to sense or respond to our surroundings.

5. Draw the structure of a neuron and explain its function.

A neuron has three main parts: **dendrites**, **cell body**, and **axon**.

- Dendrites receive information and send it to the cell body.
- The cell body maintains the neuron's health.
- The axon carries messages to the next neuron or muscle.

6. How does phototropism occur in plants?

Phototropism is when plants grow towards light. Auxins collect on the darker side of the plant, causing those cells to grow faster and bend the shoot toward the light source.

7. Which signals get disrupted in case of a spinal cord injury?

Both incoming (sensory) and outgoing (motor) signals get disrupted because they pass through the spinal cord. This means the brain can't send or receive messages from the affected area.

8. How does chemical coordination occur in plants?

Plants use hormones like **auxins**, **gibberellins**, **cytokinins**, **abscisic acid**, and **ethylene** to control growth and respond to their environment. Some hormones promote growth, while others slow it down.

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9. Why do organisms need a system of control and coordination?

All organs in the body must work together for survival. The **nervous system** controls actions and responses, while the **endocrine system** regulates growth and metabolism through hormones. Together, they keep the body balanced and functioning properly.

10. How are involuntary actions and reflex actions different from each other?

Reflex Actions

Automatic and quick responses to stimuli

Controlled by the spinal cord

Very fast

Can involve muscles or glands

Can be trained or learned

Example: Blinking

Involuntary Actions

Happen without conscious control

Controlled by the brain (medulla)

Slower

Involves smooth muscles

Cannot be controlled

Example: Heartbeat

11. Compare the nervous and hormonal control systems in animals.

Nervous Control

Works through nerve impulses

Very fast response

Not specific

Short-term effects

Hormonal Control

Works through hormones in blood

Slower response

Very specific to target organs

Long-term effects

2. How is movement in a sensitive plant different from movement in our legs?

Movement in Sensitive Plant

Happens automatically when touched (involuntary)

Movement in Our Legs

Voluntary, under our control

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Movement in Sensitive Plant

No special tissue for information transfer

No special proteins for movement

Movement in Our Legs

Controlled by the brain and nerves

Muscles have special proteins for contraction



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