

1. Q. Name the plant hormones responsible for elongation of cells.

Ans: Auxin and cytokinin are responsible for elongation of cells.

2. Q. Trace the sequence of event through a reflex arc which occur when a bright light is focussed on your eyes?

Ans: Stimulus (light) → Receptor organ (eye) → Sensory nerve → Spinal cord → Effector organ (pupil) → Response (reduce size of pupil)

3. Q. Name the hormones in human which regulate carbohydrates, protein and fat metabolism in body. Mention site where it is synthesized.

Ans: Thyroxin hormones produced by Thyroid gland regulate carbohydrates, protein and fat metabolism in body.

4.Q. Write two differences between the response of the plants and response of the animals to stimuli.

Ans: The response of the plants to stimuli is slower than that of animals. Plants produce hormones and respond stimuli. Animal response to stimuli using nerves and hormones

5. Q. (a) An old man is advised by his doctor to take less sugar in his diet. Name the disease from which the man is suffering. Mention the hormone due to imbalance of which he is suffering from this disease. Which endocrine gland secretes this hormone?

(b) Name the endocrine gland which secretes growth hormone. What will be its effect on a person of :

(i) Deficiency of growth hormone. (ii) Excess secretion of growth hormone.

Ans: a) man is suffering from diabetes caused by hormone insulin which is produced by the pancreas and helps in regulating blood sugar levels

b) Growth hormone is secreted by the pituitary. It regulates growth and development of the body. If there is a deficiency of this hormone in childhood, it leads to dwarfism. If there is an excess of this hormone in childhood, it leads to Gigantism

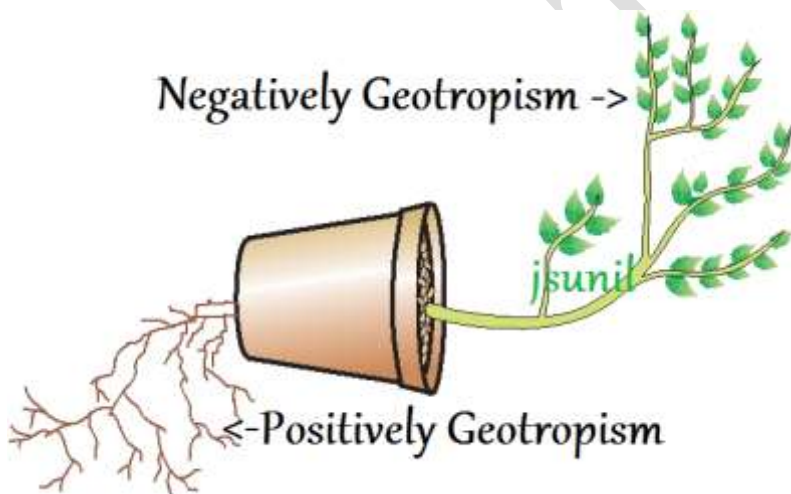
6. Q. Illustrate with the help of a diagram the effect of Auxins in different parts of a plant.

Ans: In a shoot, the shaded side contains more auxin. This means that the shaded side grows longer, causing the shoot to bend towards the light

Auxins have the opposite effect on root cells. In a root, the shaded side contains more auxin, but this time the shaded side grows less than the light side. This causes the root to bend away from the light.

Auxins are also involved in geotropisms. In a root placed horizontally, the bottom side contains more auxin than the top side. This makes the bottom side grow less than the top side, causing the root to bend in the direction of the force of gravity.

In a shoot placed horizontally, the bottom side contains more auxin than the top side. This makes the bottom side grow more than the top side, causing the shoot to bend and grow against the force of gravity.



7. Q. What is synapse? How does a message of an impulse transmit through a synapse?

Ans: Space/junction between two adjacent nerves is called Synapse

At the end of the axon, the electrical impulse sets off the release of some chemicals. These chemicals cross the gap, or synapse, and start a similar electrical impulse in a dendrite of the next neuron

8.Q. Explain how does our body respond when adrenaline hormone is secreted into the blood?

Ans: Adrenaline is secreted directly into the blood and carried to different parts of the body. The target organs or the specific tissues on which it acts include the heart. As a result, the heart beats faster, resulting in supply of more oxygen to our muscles. The blood to the digestive system and skin is reduced due to contraction of muscles around small arteries in these organs. This diverts the blood to our skeletal muscles. The breathing rate also increases because of the contractions of the diaphragm and the rib muscles.

9. Q. Define tropism. Explain four kinds of tropisms with one example each.

Ans: The movements of plants in the direction of stimulus (positive) or away from it (negative) are called tropic movements. E.g. Phototropism, Geotropism. Chemotropism.

Phototropic movement: Shoots respond by bending towards light while roots respond by bending away from it.

Geotropism: The roots of a plant always grow downwards while the shoots usually grow upwards in response to the pull of earth or gravity

Chemotropism: the growth of pollen tubes towards ovules which help in reproduction

10. Q. Name the hormones required for followings. Also mention the name of endocrine gland for which that is secreted

(a) Lowering blood sugar

(b) Development of moustache and beard in human males.

(c) Metabolism of carbohydrates, protein and fat

Ans: (a) Lowering blood sugar : Hormone insulin secreted by Pancreas

(b) Development of moustache and beard in human males. : Hormone Testosterone secreted by testis

(c) Metabolism of carbohydrates, protein and fat : Hormone Thyroxin secreted by Thyroid gland

11. Q. (a) Name the one organ where growth hormones is synthesized in man and plants

(b) Trace the sequence of event which occur when a plant is exposed to unidirectional light, leading to bending of a growing shoot. Also name the hormones and the type of hormones

Ans: (a) Pituitary gland in brain and tip of root and shoot synthesized growth hormones in man and plants

(b) When light is coming from one side of the plant, auxin diffuses towards the shady side of the shoot. This concentration of auxin stimulates the cells to grow longer on the side of the shoot which is away from light. Thus, the plant appears to bend towards light.

12. Q. 'Brain and Spinal Cord are two vital organs of our body'. How is our body designed to protect them ?

Ans: Brain is a delicate organ that is protected by a bony box. Inside the box, the brain is contained in a fluid-filled balloon which provides further shock absorption.

At the middle of back, there is a hard, bumpy structure called the vertebral column or backbone which protects the spinal cord.

13. Q. How do auxins help in bending of stem towards light ? Explain.

Ans: When growing plants detect light a hormone called Auxin, synthesized at the shoot tip helps the cells to grow longer. When light is coming from one side of the plant, Auxin diffuses towards the shady side of the shoot. This concentration of Auxin stimulates the cells to grow longer on the side of the shoot which is away from light. Thus plant appears to bend towards light.

14. Q. What will happen if intake of iodine in our diet is low?

Ans: If intake of iodine in our diet is low, less amount of thyroxine will be produced by the thyroid gland which may finally lead to a disease named goiter due to deficiency of iodine. Thus adequate intake of iodine is essential for a body.

15. Q. At the time of puberty both boys and girls show lots of changes in appearance. Name the hormones responsible for the changes.

Ans: Testes in boys produces hormone Testosterone and Ovaries in girls produces hormone Oestrogen

Q. Nerve input signal travelled only up to the spinal cord and gave output signal for a response. What type of action did the body show voluntary or involuntary? (b) Draw a nerve pathway for the above action and suggest specific terms for input nerve and output nerve. Ans:(a) involuntary (b)