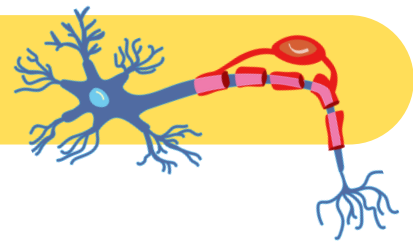


• Control and Coordination



1. Name a plant hormone responsible for bending of a shoot of a plant when it is exposed to unidirectional light. How does it promote phototropism ? (CBSE 2019, 2023)
2. With the help of suitable examples explain the terms phototropism, geotropism and chemotropism, (CBSE 2016, 2020)
3. Draw a diagram of the cross-sectional view of the human brain label the parts of the brain with the functions. (CBSE 2017, 2020)
4. How does the feedback mechanism regulate hormone secretion? Explain with the help of an example ? (CBSE 2017, 2019)
5. Name the part of human brain which control the voluntary and involuntary actions. (CBSE 2017, 2018)

Solutions

1. Phototropism is the term for a plant's bending towards light. The hormone auxins found in plants is to blame. Auxins, which are produced at the tips of the shoots of phototropic plants, aid in the extension of the cells when the growing sections of the plant sense sunlight.

2. a. **Phototropism**: It is the direction of growth of a plant in response to the direction of the light. Eg - Movement of shoots of plants upwards towards light.

b. **Geotropism**: It is the term used to describe the directional movement of growth that plants display in response to gravity. Geotropism is the growth of roots in the direction of gravity.

c. **Chemotropism**: The directed movement of growth in response to a chemical stimulation is known as chemotropism.

When the pollen tube expands in the direction of the substance released by the ovary during pollen tube germination, this is known as chemotropism.

3. The following are the functions of several brain regions: The medulla oblongata is responsible for regulating reflex responses and involuntary actions. Moreover, it regulates vomiting, salivation, and blood pressure.

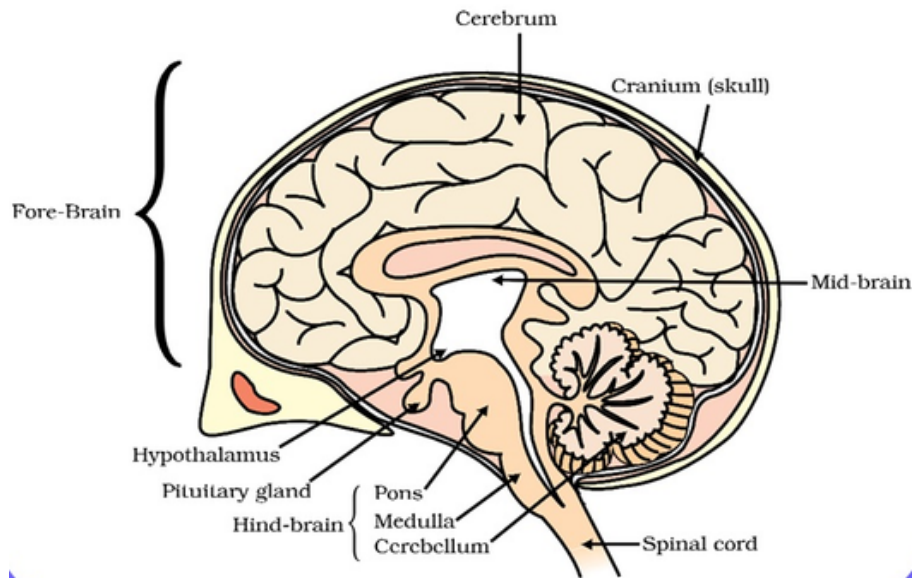
Cerebellum: It directs and synchronizes various muscle movements. It is in charge of voluntary movements and keeps the body balanced whether one is walking, drinking, catching, etc.

Parts of the forebrain include the following:

1. **Cerebrum**: Responsible for thinking, speaking, reasoning, intelligence, and information utilization.

2. **Olfactory**: Lobes in this area are in charge of identifying odors from various receptors.

3. **Diencephalon**: Regulates body temperature, appetite, thirst, and other impulses.



4. The system that keeps the body's and blood's hormone balance stable is known as the hormone feedback mechanism. That specific hormone's concentration can either increase or decrease, which will either encourage or hinder the hormone's secretion. We refer to this as feedback.

There are two different kinds of feedback. Positive feedback is referred to as such, but negative input is not. The hormone is secreted or produced more when there is a positive feedback loop. On the other hand, the hormone's release is suppressed by the negative feedback.

For instance, eating food high in carbohydrates raises blood glucose levels. The pancreas secretes insulin when blood glucose levels rise. The cells will be signaled by this insulin to start absorbing blood glucose. Therefore The blood's glucose content drops. There would be a shortage of glucose in the circulation if insulin was still present because more and more glucose would be carried inside the cell. In order to stop this, low blood glucose levels provide negative feedback, which in turn stops the blood's production of insulin.

5. The medulla controls the involuntary actions whereas the forebrain is responsible for controlling the voluntary actions in the body.