

## Control and Coordination: Exercise Questions

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

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

**Sol.** (d) Cytokinin

**Q.2 The gap between two neurons is called a**

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

**Sol.** (b) Synapse

**Q.3 The brain is responsible for**

- (a) Thinking
- (b) Regulating the heart beat
- (c) Balancing the body
- (d) All of the above

**Sol.** (d) All of the above

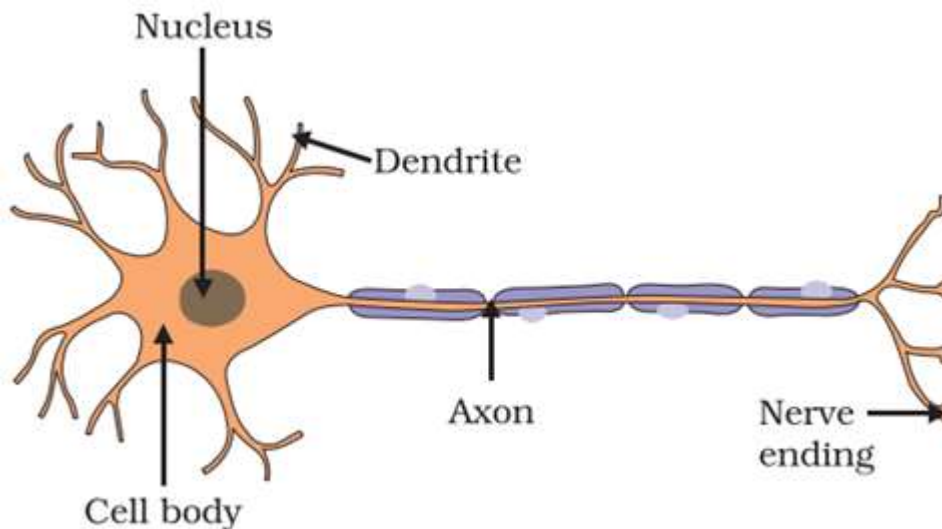
**Q.4 What is the function of receptors in our body? Think of situations where receptors do not work properly. What problems are likely to arise?**

**Sol.** Receptors are present in sense organs of our body which provide information about the change in external environment so that the brain can direct the associated organ to take the necessary action. Receptors play an important role in our survival. If receptors do not work properly, then information obtained from the change of environment will be delayed to reach the central nervous system and the response will be delayed causing harm to the body.

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

**Sol.** Neuron is the functional unit of nervous system. A neuron has three parts:

- (i) cell body
- (ii) dendrite
- (iii) axon

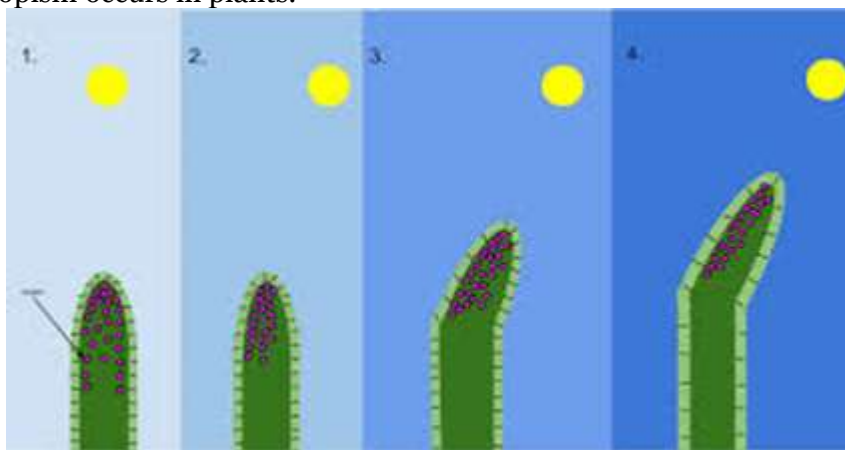


**Function of Neuron:** The function of neuron is transmit the information in form of nerve impulses.

**Q.6 How does phototropism occur in plants?**

**Sol.** Directional movement and growth of plants due to light is called hydrotropism. In this process, concentration of auxin changes in a plant, in response to the direction of light. Example: in a stem, auxin concentration increases in those parts which are away from light. Due to accumulation of auxin, cell

division increases in that part and thus the stem bends towards light as shown in figure. That is how phototropism occurs in plants.



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

**Sol.**

In case of spinal cord injury, communication between the spinal nerves and the brain would be disturbed. Since the autonomous nervous system is also connected to the spinal cord. So, communication between the autonomous nervous system and brain would also be disturbed.

### Q.8 How does chemical coordination occur in plants?

**Sol.** Plant hormones play very important roles in chemical coordination. Most plant hormones promote growth in certain plant parts, e.g. auxin, gibberellins and cytokinin. While abscissic hormone inhibits growth. Shedding of leaves and ripe fruits is done by abscissic acid. In this way, Chemical coordination in plants takes place with the help of plant hormones.

### Q.9 What is the need for a system of control and coordination in an organism?

**Sol.** An organism needs a system for control and coordination. An organisms have various organs. These organs need to be controlled and coordinated for the survival of an organisms. Organisms cannot live in isolation. It has to constantly interact and has to respond properly with its external environment for its survival. Example: When a hungry lion hunts a deer, the lion has to quickly make a move so that it can make its own food. While, deer needs to move quickly to save its lives.

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

**Sol.** Difference between involuntary actions and reflex actions:

Involuntary actions	Reflex actions
1. Involuntary actions are part of routine activities like- Breathing, beating of heart, etc.	1. Reflex actions are in response to a sudden danger. Like –Blinking of eye when dust particle strike with it.
2. These actions are controlled by mid brain or medulla oblongata.	2. These actions are controlled by Spinal cord.
3. Relatively slower	3. Very quick and instantaneous

### Q.11 Compare and contrast nervous and hormonal mechanisms for control and coordination in animals.

**Sol.** Comparison between nervous and hormonal mechanisms:

Nervous mechanisms	Hormonal mechanisms
1. It is fast.	1. It is slow.
2. It is controlled by neuro transmitter.	2. It is controlled by hormones.
3. It contains nerve impulse between PNS and CNS.	3. It contains endocrine system which secretes different hormones for control and coordination.

**Q.12** What is the difference between the manner in which movement takes place in a sensitive plant and the movement in our legs?

**Sol.** The movement in a sensitive plant is controlled by chemical control. It is involuntary action. While the movement in our legs is controlled by nervous system. It is voluntary action.

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