

## Chapter 7 - The Nervous System

### Multiple Choice Questions:

1. Put a tick mark (✓) against the correct alternative in the following statements:

**(a) Medulla oblongata controls**

1. Smelling
2. Beating of heart and respiratory movement
3. Intelligence and will power
4. Balancing the body

**Solution:** Beating of heart and respiratory movement

**(b) Balance of body is controlled by:**

1. Spinal cord
2. Cerebellum
3. Cerebrum
4. Medulla

**Solution:** Cerebellum

**(c) The smell of good food causes watering of your mouth. It is a**

1. Natural reflex
2. Acquired reflex
3. Inborn reflex
4. Ordinary reflex

**Solution:** Acquired reflex

**(d) The structural and functional unit of nervous system is a**

1. Axon
2. Nephron
3. Neuron
4. Texon

**Solution:** Nephron

**Short Answer Questions:**

**Question 1.**

**Name the two types of coordination which take place in our body.**

**Solution:**

- (a) Nervous coordination: By nerves and brain
- (b) Chemical coordination: By hormones

**Question 2.**

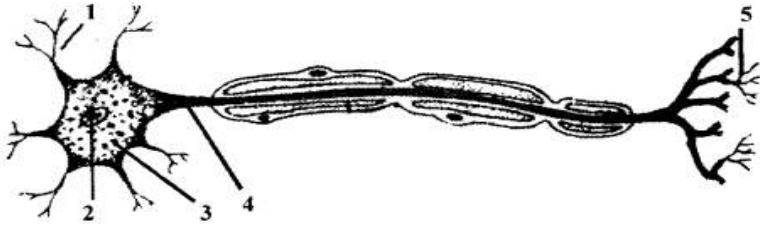
You are driving your bicycle at a fast speed. Suddenly, a small boy comes in front of your cycle and, without wasting any time in thinking, you immediately apply the brakes and accident is avoided. What name is given to such an action?

**Solution:**

Reflex action (acquired).

**Question 3.**

Given below is the diagram of a neuron. Name the parts numbered 1-5.



**Solution:**

1. Dendrite
2. Nucleus
3. Cell Body (Nylon)
4. Axon (Nerve fibre)
5. Node of Ranvier

**Question 4.**

Write one word in the space provided to complete the second pair of the related words pertaining to nervous system.

Memory: cerebrum :: breathing: ?

Balance: cerebellum :: reasoning: ?

**Solution:**

Memory: cerebrum :: breathing: medulla oblongata

Balance: cerebellum :: reasoning: cerebrum

**Question 5.**

Differentiate between the following pair of terms:

(a) Stimulus and impulse

**Solution:**

**Stimulus:** Any change in the environment that usually results in a change in the activity of the body. It is an influence.

**Impulse:** A wave of electrical disturbance that runs through the nerves.

(b) Receptor and effector

**Solution:**

**Receptor:** The nerve cell on receiving the stimulus sets up the waves of impulses towards the central nervous system.

**Effector:** Any muscle or gland will contract or secrete when receiving an impulse from the brain.

(c) Motor nerve and sensory nerve

**Solution:**

**Motor nerve:** It contains only motor neurons, Example: Nerves going to the muscles of the eyeball. **Sensory nerve:** It contains only sensory neurons. Example: the optic nerve of the eye.

**Question 6.**

(a) Name the three major divisions of the human nervous system.

**Solution:**

1. The peripheral nervous system
2. The central nervous system
3. The autonomic nervous system

(b) Name the three main parts of the human brain.

**Solution:**

1. Cerebrum
2. Cerebellum
3. Medulla oblongata

**Question 7.**

Give the function of each of the following:

- (a) Olfactory nerve:
- (b) Optic nerve:
- (c) Facial nerve:

**Solution:**

**(a) Olfactory nerve:** The epithelial layers of the nasal chambers has a sense of smell. The sense of smell is carried to the brain by the olfactory nerve. They arise from the anterior ends of the olfactory lobes and are distributed to the lining of nasal chambers.

**(b) Optic nerve:** optic nerves carries the reflection of the object from the retina to the brain. The image formed on the retina is in a reversed position, and the correct picture is formed in the brain as the object is. The optic nerves arise from the side of the diencephalon. They innervate the retina of the eye and are sensory in nature.

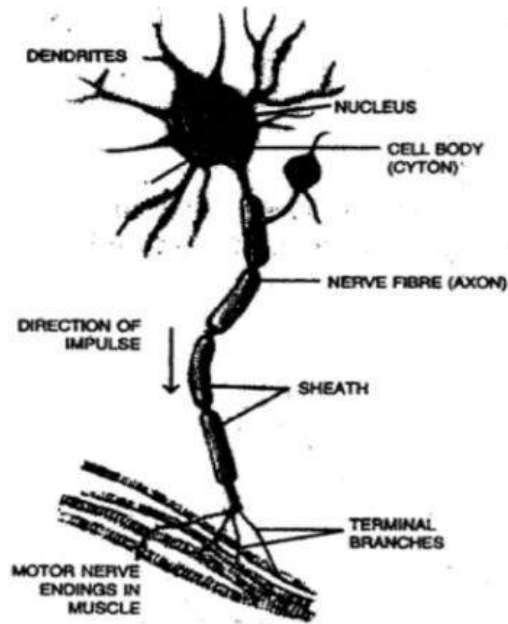
**(c) Facial nerve:** Message and all expressions of the face, mastication work done by the teeth, movement of the neck and the activities of the salivary glands to the brain are carried by the facial nerve. It arises from the side of the medulla. On the whole facial nerves are mixed in nature.

**Long Answer questions****Question 1.**

With the help of a suitable diagram describe the structures of a neuron.

**Solution:**

The nervous system consists of special cells called nerve cells or neurons. Cyton is the main cell body which gives out many processes called dendrites. Dendrites give rise to axon or nerve fibre.



The cell body has a nucleus. The message from the organs and send this message to the axon through the cell body is organized by a cell body called dendrites. Then the axon sends the message to muscle to contract or the gland for secretion.

The neurons make contact with one another through their processes. The axon at its end branches and meets the dendrites of another neuron. The meeting point is called a synapse. The message is passed on from one axon to the dendrites of another neuron. How the message goes?

It is like this:

Organ → Message goes to dendrites → Cell body → Axon → Muscles or glands

### Question 2.

Briefly describe the structure of the cerebrum in the human brain and mention its functions.

#### Solution:

The brain consists of main three parts and lies in the cranial cavity of the skull.

1. The cerebrum
2. The cerebellum
3. The medulla oblongata

**Cerebrum:** It is very large and forms two third of the whole brain. A deep longitudinal groove separates the two hemispheres from each other is the median fissure. The outer surface is folded with ridges and grooves. The hemispheres are hollow from inside, and their walls have outer and inner portions. The outer portion has cell bodies of the neurons, and it is called grey matter.

The wavy edges of the folded layer have large number of neurons to the extent of nine billion. The inner portion of the cerebrum has axons, and it is called white matter.

**Functions:**

1. It controls all the voluntary activities.
2. It is the seat of intelligence, consciousness and will power.

