



## NCERT Class X Science Class: Chapter -7. Control and Coordination – Part-9

### Question 43:

Answer the following:

- (a) Which hormone is responsible for the changes noticed in females at puberty?
- (b) Dwarfism results due to deficiency of which hormone?
- (c) Blood sugar level rises due to deficiency of which hormone?
- (d) Iodine is necessary for the synthesis of which hormone?

### Answer:

- (a) Estrogen
- (b) Growth hormone
- (c) Insulin
- (d) Thyroxin

### Question 44:

Answer the following:

- (a) Name the endocrine gland associated with brain?
- (b) Which gland secretes digestive enzymes as well as hormones?
- (c) Name the endocrine gland associated with kidneys?
- (d) Which endocrine gland is present in males but not in females?

### Answer:

- (a) Pituitary
- (b) Pancreas
- (c) Adrenal
- (d) Testes

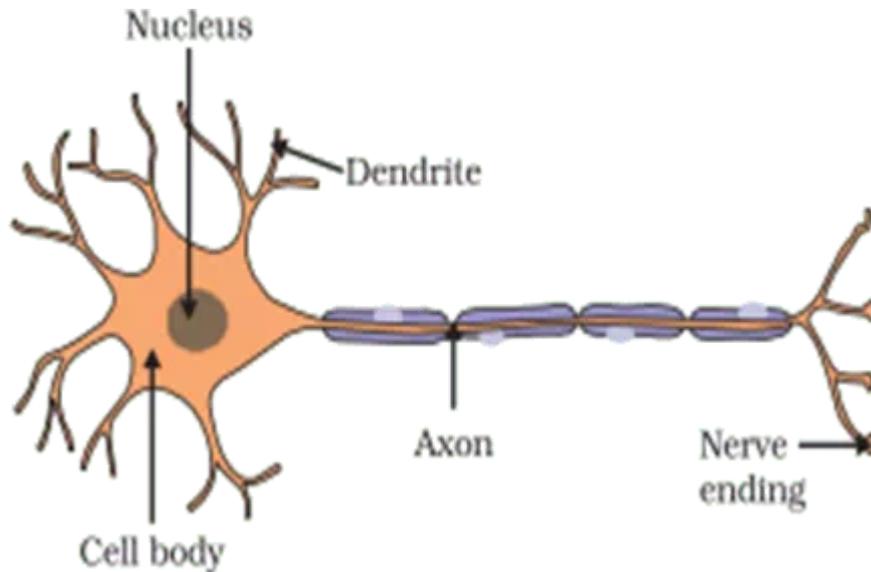
### Long Answer Questions

### Question 45:

Draw the structure of a neuron and explain its function.

### Answer:

Neurons are nerve cells, which are the functional units of the nervous system. The three main parts of a neuron are dendrite, cell body and axon.



*Image the Structure of a Neuron*

Functioning of its three parts:

**Dendrite:** It detect information and conducts the messages towards the cell body.

**Cell body:** It contains nucleus, mitochondria, and other cell organelles. It maintains the growth of the cell.

**Axon:** It conducts messages away from the cell body and pass to the next neuron.

### Question 46:

What are the major parts of the brain? Mention the functions of different parts.

### Answer:

 Image Figure shown the brain and its parts

*Image Figure Shown the Brain and Its Parts*

Brain has three major parts or regions, namely the forebrain, midbrain and hindbrain. The major parts of the brain and their functions are as follows:

**1. Fore-brain** - It is the main thinking part of the brain. It has three main parts-the olfactory lobes, the cerebrum and the diencephalon.

**(a) The olfactory lobes** - These are a pair of very small club shaped bodies which are fully covered by the cerebrum. They act as a center of smell.

**(b) The cerebrum** - It is the largest and most prominent part of the brain. It is divided into right and left cerebral hemisphere by a deep groove. It is the center of consciousness, thoughts, memory and analytical thinking. It also controls voluntary actions.

**(c) Diencephalon**-It mainly consists of pituitary gland, hypothalamus and thalamus. It possesses control unit of thirst, hunger, temperature, sleep, etc.

**2. Mid-brain** - It acts as a coordinating unit between forebrain and hindbrain. It also controls some involuntary actions.

**3. Hind-brain** - It has three main centers - Cerebellum, Pons and Medulla oblongata.

**(a) Cerebellum**- It is responsible for precision of voluntary actions and maintaining the posture and balance of the body.

**(b) Pons** - It is the center through which nerve impulses travel to and from the cerebellum, spinal cord and other parts of the brain. It also helps in respiration.

**(c) Medulla oblongata** - It is the lowermost part of the brain. It contains vital centers for controlling blood pressure, respiration, swallowing, sneezing, coughing, salivation and vomiting.

#### **Question 47:**

What constitutes the central and peripheral nervous systems? How are the components of central nervous system protected?

#### **Answer:**

**Central Nervous System:** It is hollowed part of nervous system that lies along the mid-dorsal part of the body. It has two parts-brain and spinal cord.

**Peripheral Nervous System:** It is solid lateral part of nervous system that develops from CNS and connects different parts of the body with CNS

**Peripheral nervous system has two components** - Voluntary and Involuntary-Voluntary peripheral nervous system is under the control of will. It consists of cranial nerves from brain and spinal nerves from spinal cord. Involuntary peripheral nervous system works independent of will. It develops from some cranial and spinal nerves. Involuntary peripheral nervous system is also called autonomic nervous system. It has two parts - sympathetic and parasympathetic. They control the functioning of various internal body parts.

**Protection of brain:** Cranium

**Protection of spinal cord:** Vertebral column

#### **Question 48:**

Mention one function for each of these hormones:

(a) Thyroxin

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- (b) Insulin
- (c) Adrenaline
- (d) Growth hormone
- (e) Testosterone

**Answer:**

- (a) Thyroxin regulates carbohydrate, fat and protein metabolisms
- (b) Insulin – regulates blood sugar
- (c) Adrenaline – increases heart rate and supply of blood to various organs
- (d) Growth hormone – regulates growth and development
- (e) Testosterone – controls the changes of body features associated with puberty in male

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