Worksheet 7.3

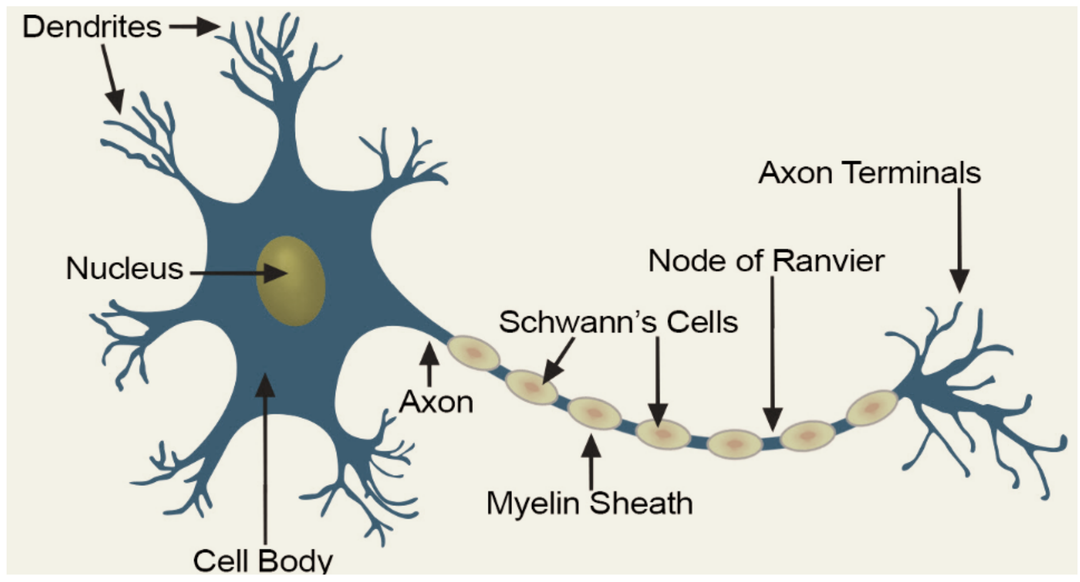
Marks - 25

Case study based questions

10th Science

Control And Coordination

Passage - 1 **5 Marks**



The multicellular animals (except sponges) have specialised cells called nerve cells (or neurons) to respond to stimuli and coordinate their activities. A system made up of nerve cells is called nervous system. The coordination in simple multicellular animals takes place through nervous system only. For example, Hydra is a simple multicellular animal. The nervous system of Hydra consists of a network of nerve cells joined to one another and spread throughout its body.

Q 1. State true or false. A system made up of nerve cells is called nervous system.

(1) TRUE
(2) FALSE

Q 2. State true or false. The control and coordination in higher animals called endocrine.

(1) TRUE
(2) FALSE

Worksheet 7.3

Marks - 25

Q 3. Vertebrates takes place through nervous system as well as hormonal system called _____ system.

(1) Nervous
(2) Endocrine

Q 4. State true or false. A receptor is a cell (or a group of cells) in a sense organ which is sensitive to a particular type of stimulus (or a particular type of change in the environment) such as light, sound, smell, taste, heat, pressure, etc.

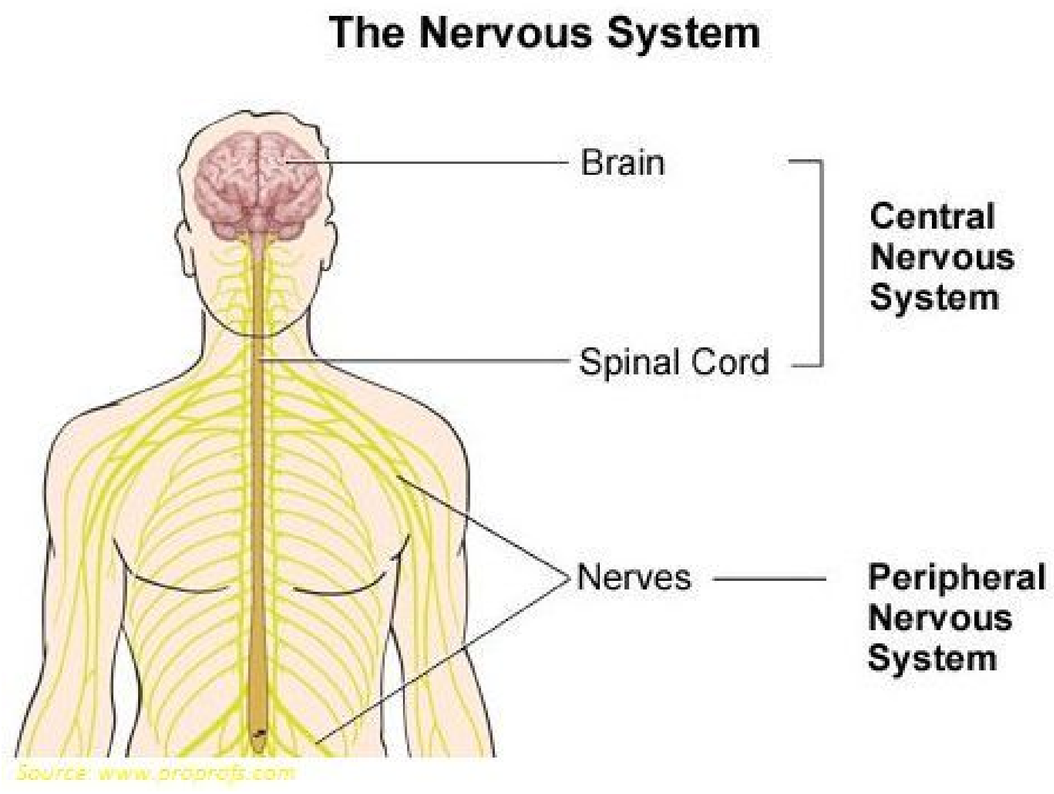
(1) TRUE
(2) FALSE

Q 5. State true or false. Photoreceptors detect light (they are present in eyes).

(1) TRUE
(2) FALSE

Passage - 2

5 Marks



The function of nervous system is to coordinate the activities of our body. It is the control system for all our actions, thinking and behaviour. The nervous system helps all other systems of our body to work together. The nervous

---

system is like a manager inside our body. Its job is to control and coordinate the parts of our body so that they work together, doing their job at the right time.

Q 1. State true or false. The function of nervous system is to coordinate the activities of our brain.

(1) TRUE
(2) FALSE

Q 2. State true or false. The human nervous system receives information from the surroundings, processes it, interprets it and then responds accordingly.

(1) TRUE
(2) FALSE

Q 3. State true or false. Nervous system is made of special cells called neurons.

(1) TRUE
(2) FALSE

Q 4. Neuron is the _____ cell in the body

(1) Largest
(2) Smallest

Q 5. State true or false. The neurons carry messages in the form of electrical signals called electrical impulses or nerve impulses.

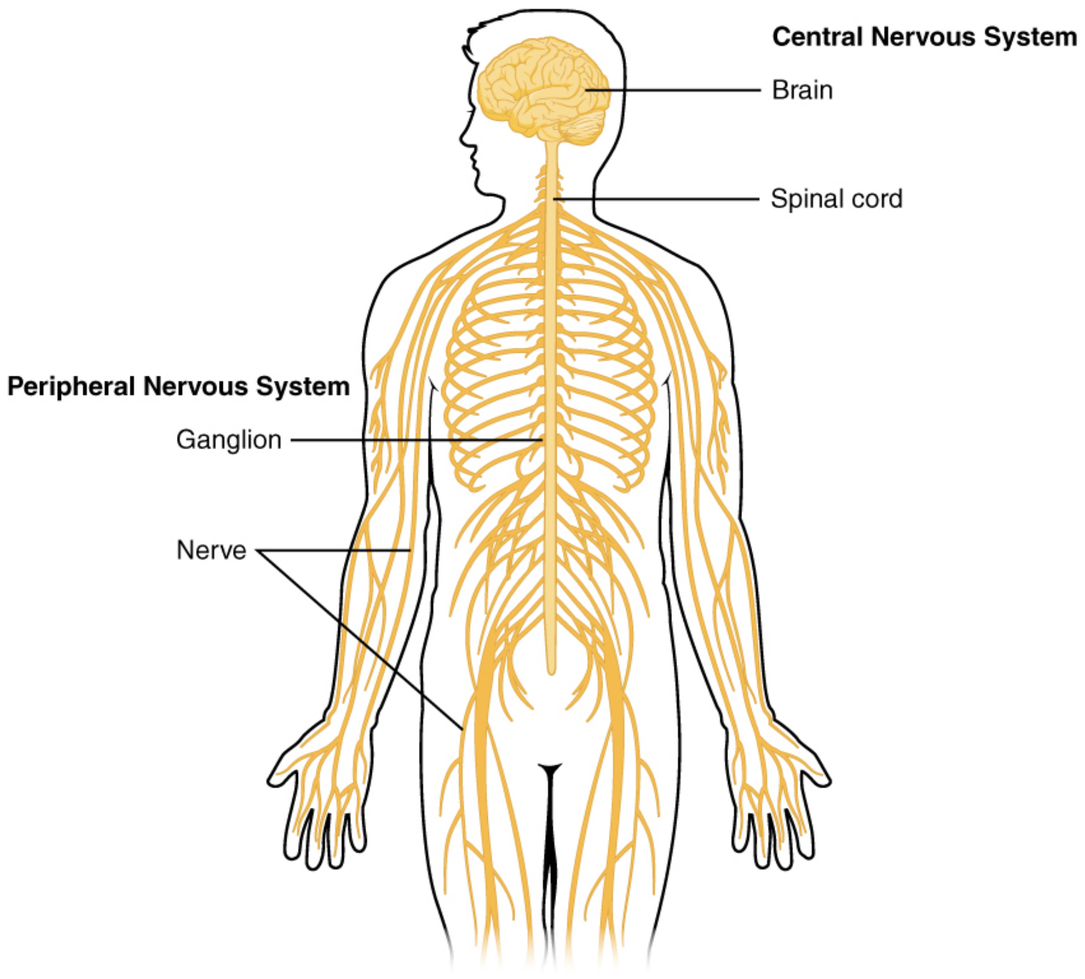
(1) TRUE
(2) FALSE

Worksheet 7.3

Marks - 25

Passage - 3

5 Marks



The main organs of the nervous system are : Brain, Spinal cord and Nerves. The sense organs like eyes, ears, tongue, nose and skin can be considered to be other organs of the nervous system because they help in the functioning of the nervous system. The brain is located inside the skull of our head. The spinal cord is a very thick nerve which runs inside the cavity of backbone in our body. The upper end of spinal cord is attached to the brain. The nerves are a kind of wires which are distributed all over our body. The brain and spinal cord are connected to all the sense organs and other parts of our body by millions of nerves.

Q 1. The spinal cord is a very _____ nerve which runs inside the cavity of backbone in our body

(1) Thin
(2) Thick

Q 2. State true or false. The upper end of spinal cord is attached to the brain.

(1) TRUE
(2) FALSE

Worksheet 7.3

Marks - 25

Q 3. The nerves which carry messages from the body parts to the brain (or spinal cord) are called _____ nerves.

(1) Motor
(2) Sensory

Q 4. The nerves which carry message from the brain (or spinal cord) to the body parts for action are called _____ nerves.

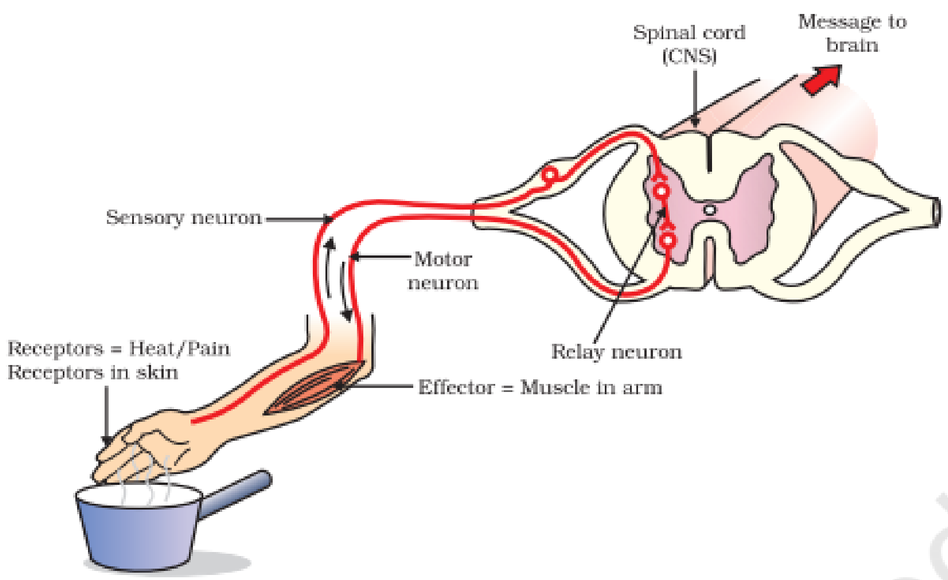
(1) Motor
(2) Sensory

Q 5. The Part of the Nervous System are:-

(1) Central nervous system
(2) Peripheral nervous system
(3) Option A and B
(4) None of these

Passage - 4

5 Marks



The simplest form of response in the nervous system is reflex action. This is a rapid, automatic response to a stimulus which is not under the voluntary control of the brain. It is described as an involuntary action. Thus, a reflex action is one which we perform automatically. It is a comparatively simple form

of behaviour in which the same stimulus produces the same response every time.

Q 1. Moving our hand away on touching a hot plate is an example of reflex action. State true or false.

(1) TRUE
(2) FALSE

Q 2. The action which we perform is a reflex action

(1) TRUE
(2) FALSE

Q 3. The pathway (or route) taken by nerve impulses in a reflex action is called _____

(1) Reflex arc
(2) Reflex action

Q 4. State true or false. A reflex action is not an automatic response to a stimulus.

(1) TRUE
(2) FALSE

Q 5. State true or false. The reflexes of this type which involve only the spinal cord are called spinal reflexes.

(1) TRUE
(2) FALSE

Worksheet 7.3

Marks - 25

Passage - 5

5 Marks

When a motor nerve impulse sent by the spinal cord (or brain) reaches the effector organs (which are muscles), then the muscles cause action or movement (such as lifting the hand away from a hot plate). We will now describe how muscles are able to move in response to electrical nerve impulses and cause action. Muscles are made up of muscle cells. Muscle cells contain special proteins which can change their arrangement when stimulated by electrical impulses, causing the muscle cells to change shape and contract. When the muscle cells contract, the muscles also contract (and become shorter). When the muscles contract, they pull on the bones of the body part and make it move. For example, when electrical impulses sent by the spinal cord (or brain) stimulate the biceps muscle of the upper arm, they make biceps muscle to contract. And when the biceps muscle contracts, it pulls on a bone of the lower arm and makes it move (lifting the hand away from the hot plate). Please note that the contraction of muscles (or muscle cells) caused by the action of electrical impulses is a reversible process.

Q 1. State true or false. 'Autonomic nervous system' means 'self governing nervous system'.

(1) TRUE
(2) FALSE

Q 2. State true or false. The autonomic nervous system controls and regulates the functions of the internal organs of our body involuntarily (on its own).

(1) TRUE
(2) FALSE

Q 3. State true or false. The voluntary nervous system helps us take voluntary actions which are under the conscious control of the brain.

(1) TRUE
(2) FALSE

Q 4. State true or false. When our eyes see time on the watch, they send this information to the brain through the motor nerves.

(1) TRUE
(2) FALSE

Q 5. State true or false. The muscles of the legs act accordingly and make us walk slower.

(1) TRUE
(2) FALSE

Worksheet 7.4

Marks - 25

Case study based questions

10th Science

Control And Coordination

Passage - 1 **5 Marks**

Like a telephone exchange with ingoing and outgoing wires, it is responsible for the coordination and control of the activity of the nervous system. The work of central nervous system is to direct incoming messages to the motor neurons that are connected to the part of the body which will respond to a stimulus. In complicated responses, the brain and spinal cord are both involved. That is, in complicated responses, central nervous system is involved. The central nervous system enables a person to give a more appropriate and more intelligent response to various situations. By using the central nervous system, a person can vary his behaviour according to the changing situations.

Q 1. The central nervous system (CNS) consists of

(1) Brain
(2) Spinal cord
(3) Option A and B
(4) None of these

Q 2. State true or false. The central nervous system enables a person to give a more appropriate and more intelligent response to various situations.

---

(1) TRUE
(2) FALSE

Q 3. The job of the central nervous system is to _____ all the information from all the receptors in our body.

(1) Release
(2) Collect

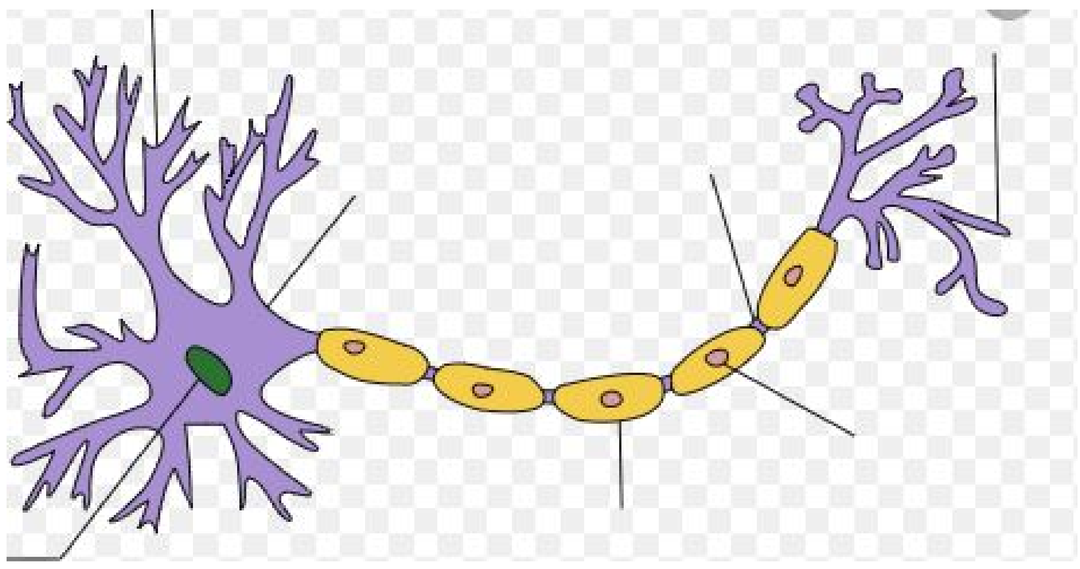
Q 4. State true or false. The best action can be taken in a particular set of circumstances.

(1) TRUE
(2) FALSE

Q 5. Does central nervous system have the ability to regenerate(regrowth of cells)?

(1) YES
(2) NO

Passage - 2 **5 Marks**



The human body contains a large number of cells A which are very long and branched, and look like electric wires. The longest branch of this cell is B where-as there are many small branches C. Any two A cells do not join to one another

completely in the human body. There is a microscopic gap D between every pair of adjacent A cells through which electric impulses can pass by the release of a chemical substance.

Q 1. Cells A are Neurons. True or false ?

(1) TRUE
(2) FALSE

Q 2. What is the name of branch B.

(1) Axon
(2) Dendrites
(3) Neurons

Q 3. What is the name of branches C.

(1) Dendrites
(2) Axon
(3) Neurons

Q 4. What is the microscopic gap D known as ?

(1) Fluid
(2) Synapse
(3) Gap zone
(4) Axon

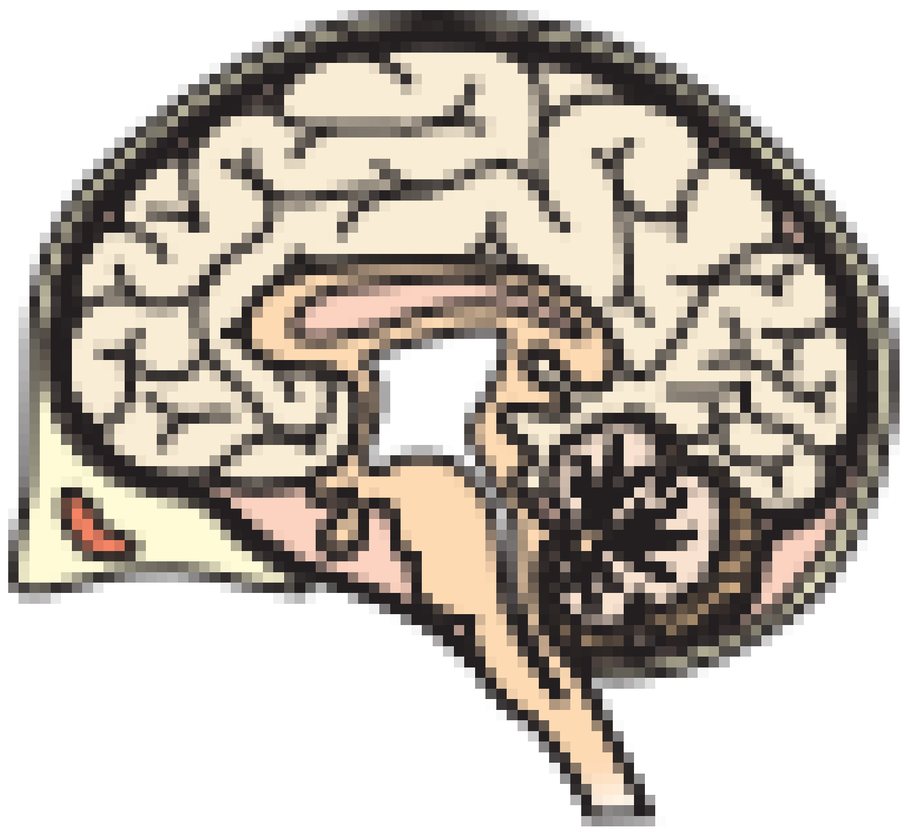
Q 5. The cells A are of ____ types.

(1) 1

(2) 2
(3) 3
(4) 4

Passage - 3

5 Marks



The organ A which is located inside the skull of our body is protected by a bony box B and it is surrounded by three membranes C. The space between the membranes is filled with a liquid D which protects the organ A from mechanical shocks. The organ A in combination with another organ E makes up the central nervous system.

Q 1. What is organ A ?

(1) Brain
(2) Heart
(3) Lungs
(4) Kidneys

Q 2. Name B.

(1) Meninges
(2) Cranium
(3) Spinal cord

Q 3. While walking barefooted, if we happen to step on a sharp piece of stone, we immediately lift our foot up. Which of the two organs, A or E, is directly involved in this action ?

(1) A
(2) E

Q 4. If we step out from a darkened room into bright sunshine, we close our eyes for a moment. Which of the two organs, A or E, is directly involved in this action ?

(1) A
(2) E

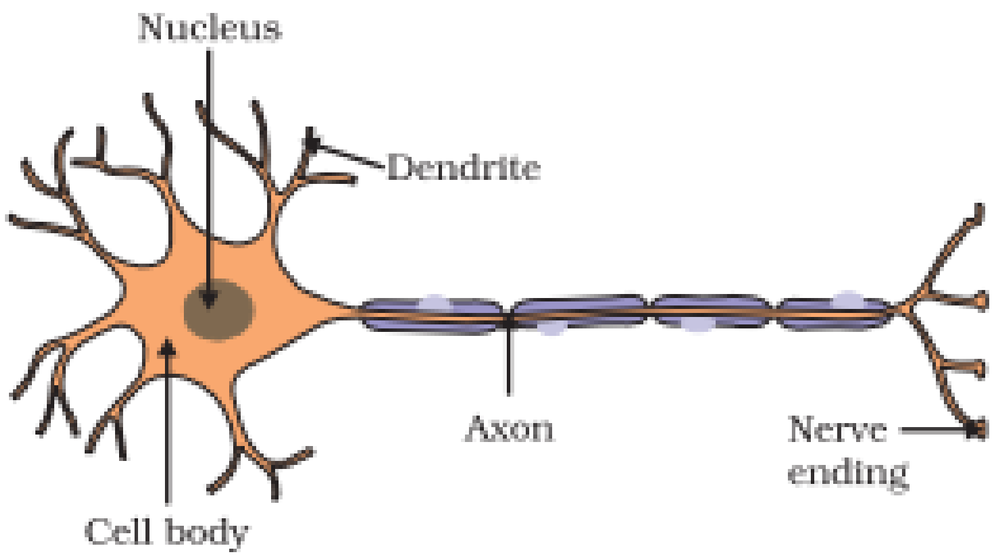
Q 5. Name the organ E.

(1) Meninges
(2) Cranium
(3) Spinal cord

Passage - 4 **5 Marks**

Worksheet 7.4

Marks - 25



The human body contains a large number of cells neurons which are very long and branched, and look like electric wires. The longest branch of this cell is axon whereas there are many small branches called dendrites. Any two nerve cells do not join to one another completely in the human body. There is a microscopic gap synapse between every pair of adjacent nerve cells through which electric impulses can pass by the release of a chemical substance. Read the above paragraph and answer the questions that follows :

Q 1. Electrical impulse travels in a neuron from :

(1) Dendrite, axon, axon end, cell body
(2) Cell body, dendrite, axon, axon end
(3) Dendrite, cell body, axon, axon end
(4) Axon end, axon, cell body, dendrite

Q 2. In a synapse, chemical signal is transmitted from :

(1) Axon to cell body of the same neuron
(2) Cell body to axon end of the same neuron
(3) Dendrite end of one neuron to axon end of adjacent neuron
(4) Axon end of one neuron to dendrite end of adjacent neuron

Q 3. In a neuron, the conversion of electrical signal to a chemical signal occurs at/in

(1) Dendrite end

(2) Cell body
(3) Axon end
(4) Myelin sheath

Q 4. Neurons are of ___ types.

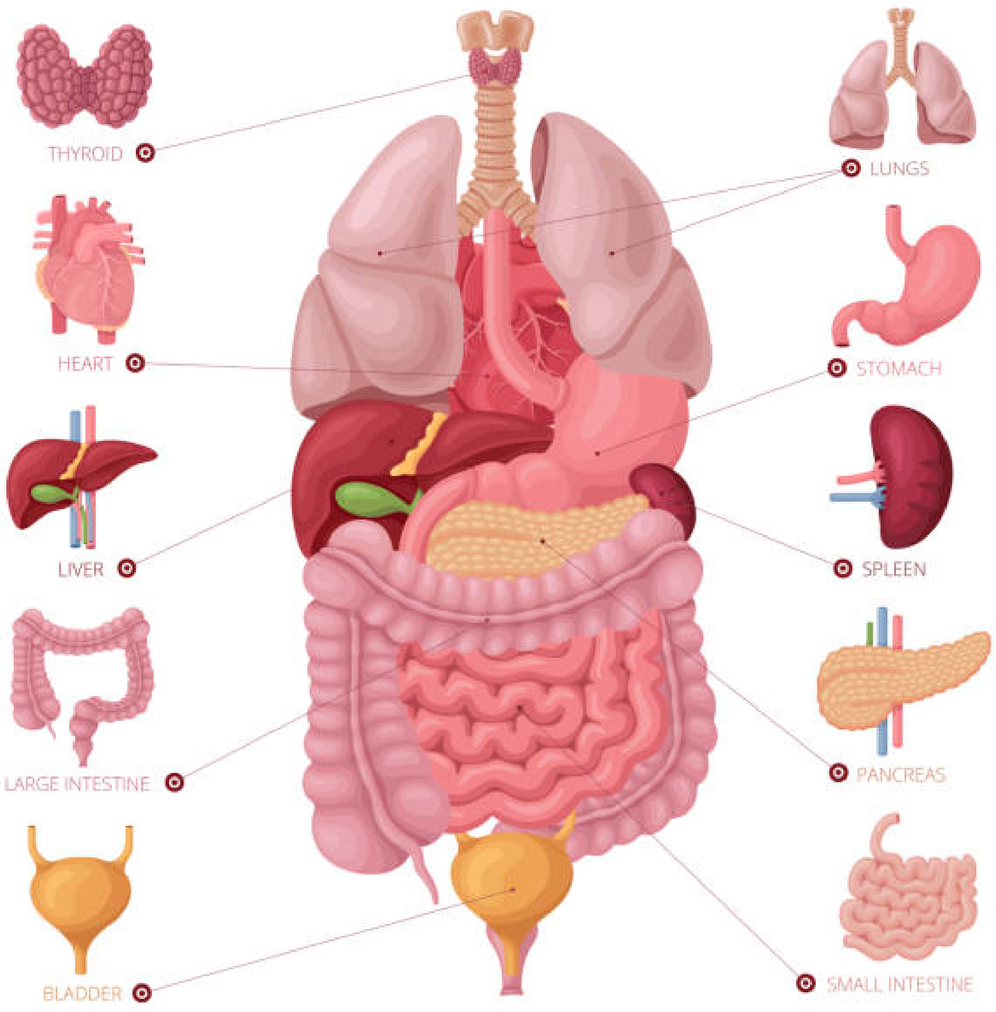
(1) 1
(2) 2
(3) 3
(4) 4

Q 5. The function between two adjacent neurons is called

(1) Nerve junction
(2) Sensory junction
(3) Synapse
(4) Neuro-muscular joint

Passage - 5

5 Marks



Worksheet 7.4

Marks - 25

A gland W is located just below the stomach in the human body. The gland W secretes a hormone X. The deficiency of hormone X in the body causes a disease Y in which the blood sugar level of a person rises too much. person having high blood sugar is called Z. Read the paragraph and answer the following questions :

Q 1. Name gland W.

(1) Pancreas
(2) Thyroid glands
(3) Adrenal
(4) Pineal

Q 2. Name hormone X.

(1) Insulin
(2) Thyroxine
(3) Adrenine

Q 3. What is disease Y ?

(1) Diabetes
(2) Obesity
(3) Asthma

Q 4. Name the person Z.

(1) Obese person
(2) Diabetic person

Q 5. Which is the target organ of both adrenaline and insulin ?

---

(1) Heart
(2) Kidney
(3) Liver
(4) Pancreas