Answer Key 7.3

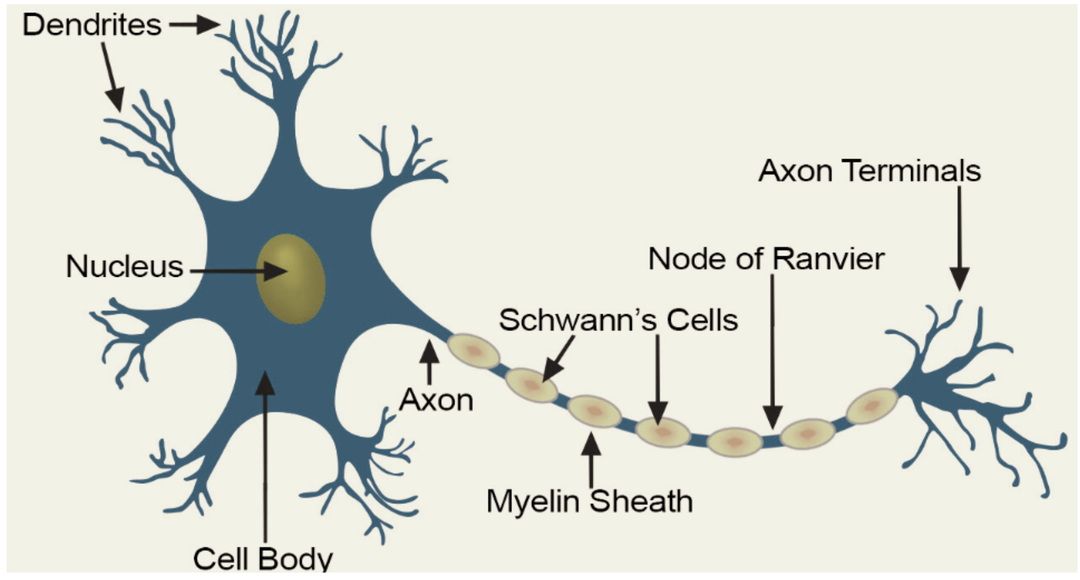
Marks - 25

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.

Q1. (1) TRUE

Q2. (2) FALSE

Q3. (2) Endocrine

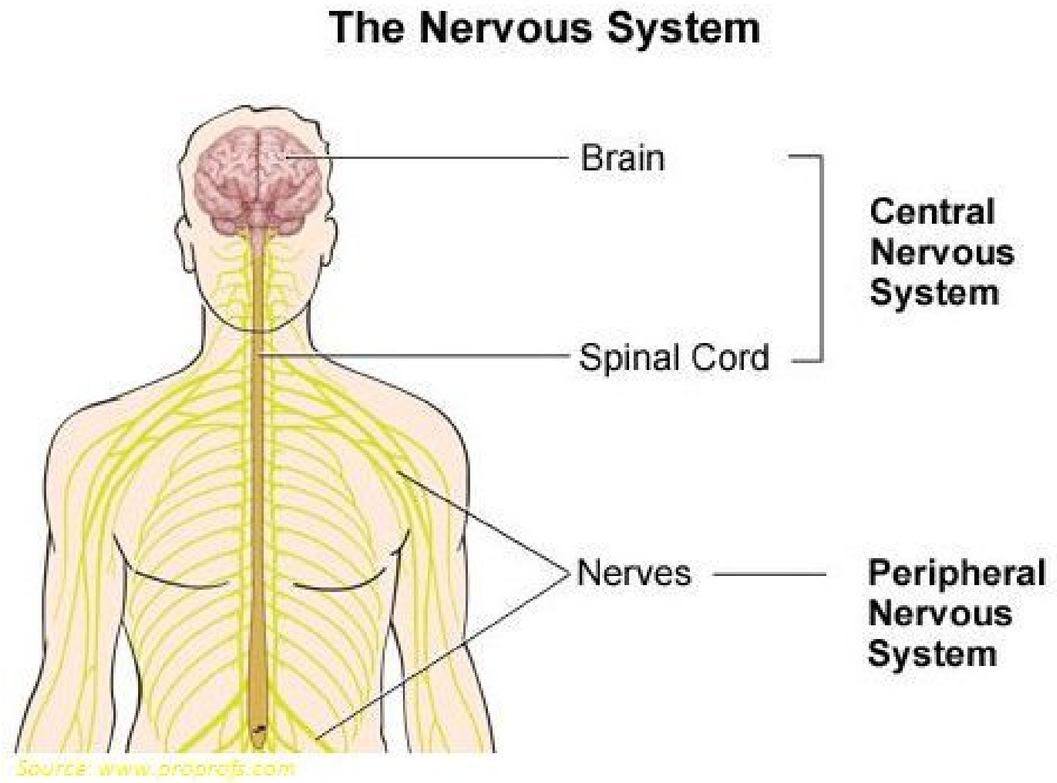
Q4. (1) TRUE

Q5. (1) TRUE

Passage - 2 **5 Marks**

Answer Key 7.3

Marks - 25



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.

Q1. (2) FALSE

Q2. (1) TRUE

Q3. (1) TRUE

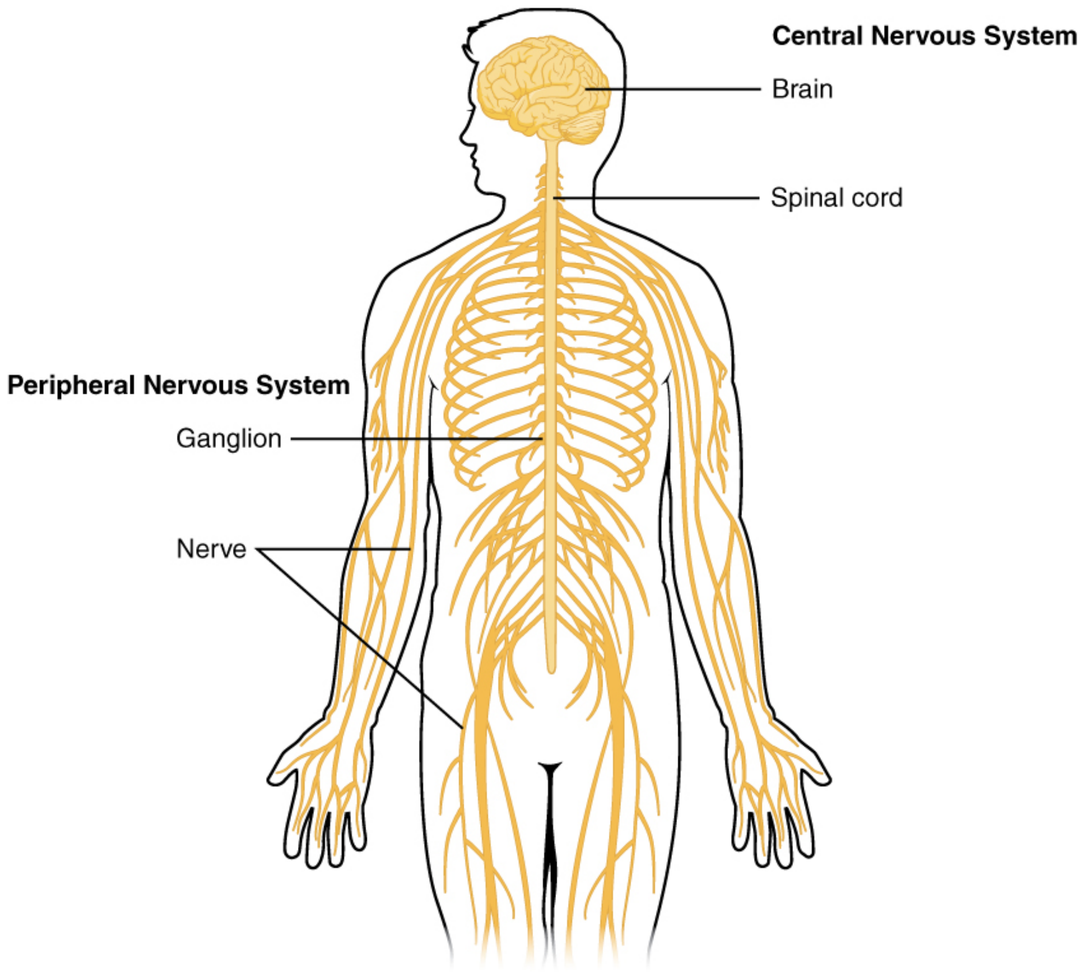
Q4. (1) Largest

Q5. (1) TRUE

Passage - 3 **5 Marks**

Answer Key 7.3

Marks - 25



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.

Q1. (2) Thick

Q2. (1) TRUE

Q3. (2) Sensory

Q4. (1) Motor

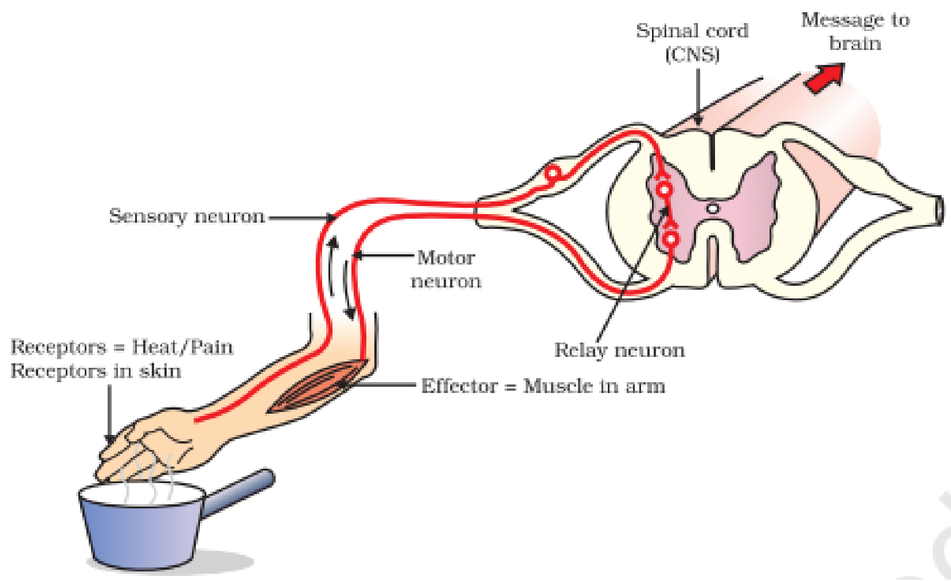
Q5. (3) Option A and B

Answer Key 7.3

Marks - 25

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.

Q1. (1) TRUE

Q2. (1) TRUE

Q3. (1) Reflex arc

Q4. (2) FALSE

Q5. (1) TRUE

Passage - 5

5 Marks

Answer Key 7.3

Marks - 25

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.

Q1. (1) TRUE

Q2. (1) TRUE

Q3. (1) TRUE

Q4. (2) FALSE

Answer Key 7.3

Marks - 25

Q5. (2) FALSE

Answer Key 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.

Q1. (3) Option A and B

Q2. (1) TRUE

Q3. (2) Collect

Q4. (1) TRUE

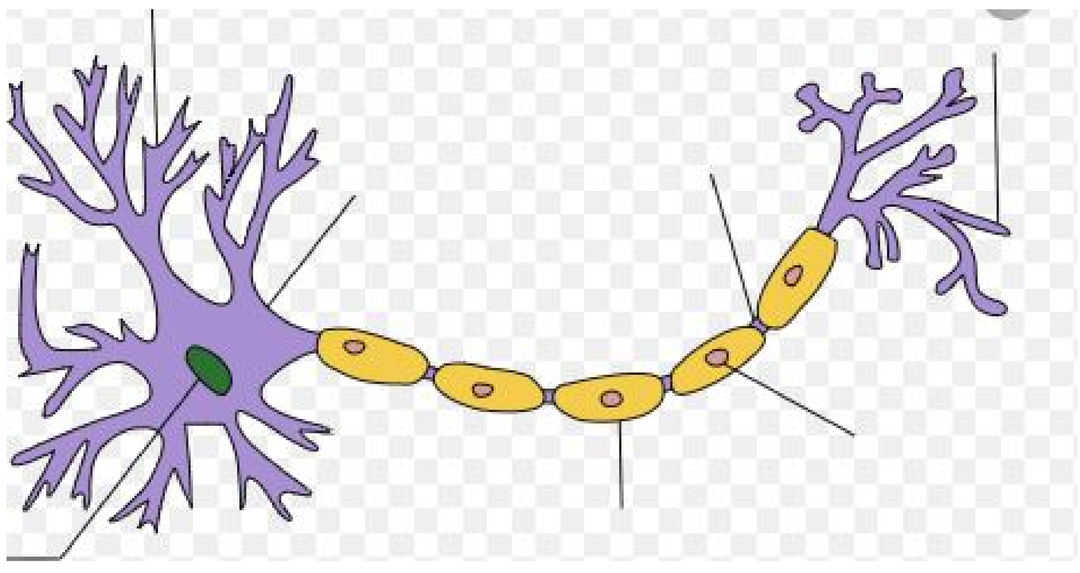
Answer Key 7.4

Marks - 25

Q5. (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.

Q1. (1) TRUE

Q2. (1) Axon

Q3. (1) Dendrites

Q4. (2) Synapse

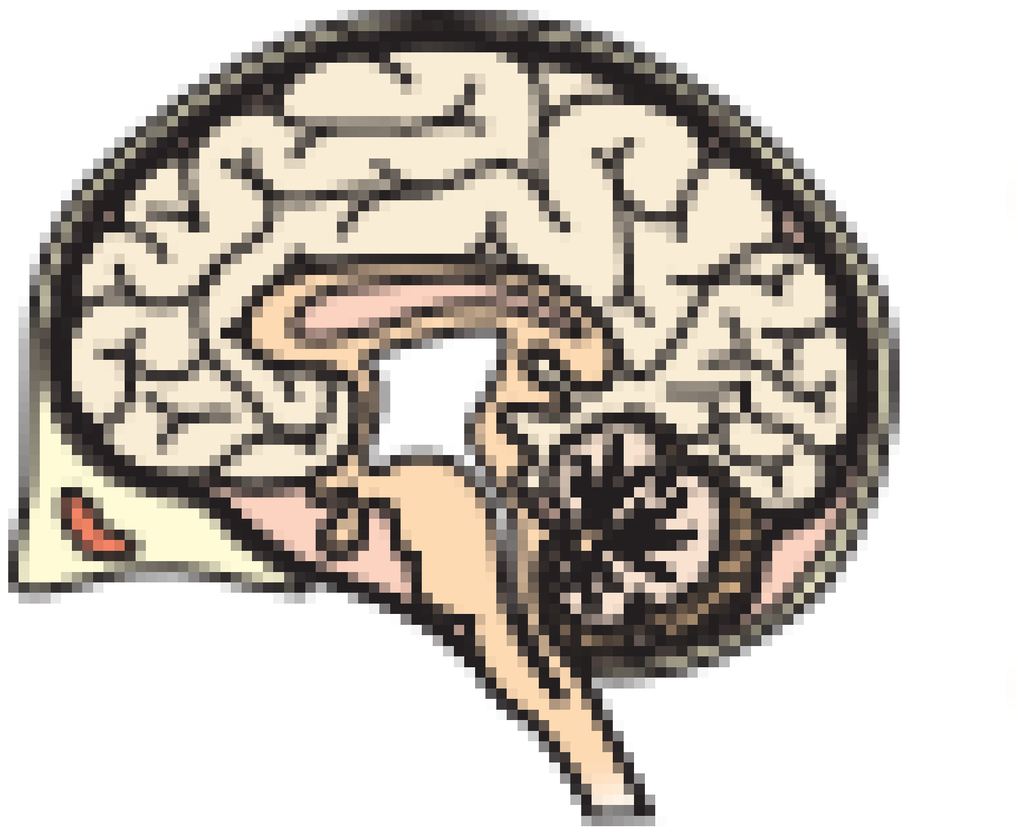
Q5. (3) 3

Passage - 3

5 Marks

Answer Key 7.4

Marks - 25



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.

Q1. (1) Brain

Q2. (2) Cranium

Q3. (2) E

Q4. (1) A

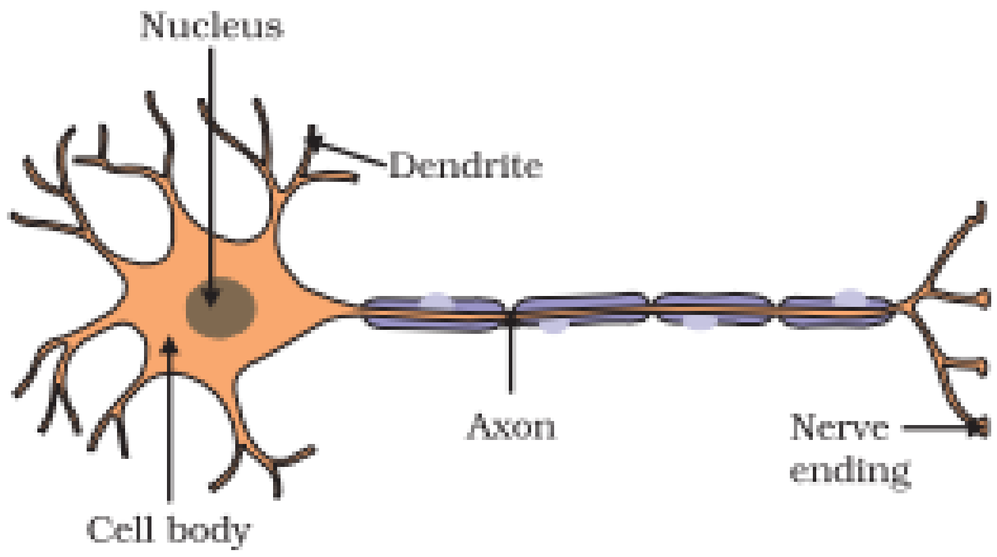
Q5. (3) Spinal cord

Answer Key 7.4

Marks - 25

Passage - 4

5 Marks



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 :

Q1. (3) Dendrite, cell body, axon, axon end

Q2. (4) Axon end of one neuron to dendrite end of adjacent neuron

Q3. (3) Axon end

Q4. (3) 3

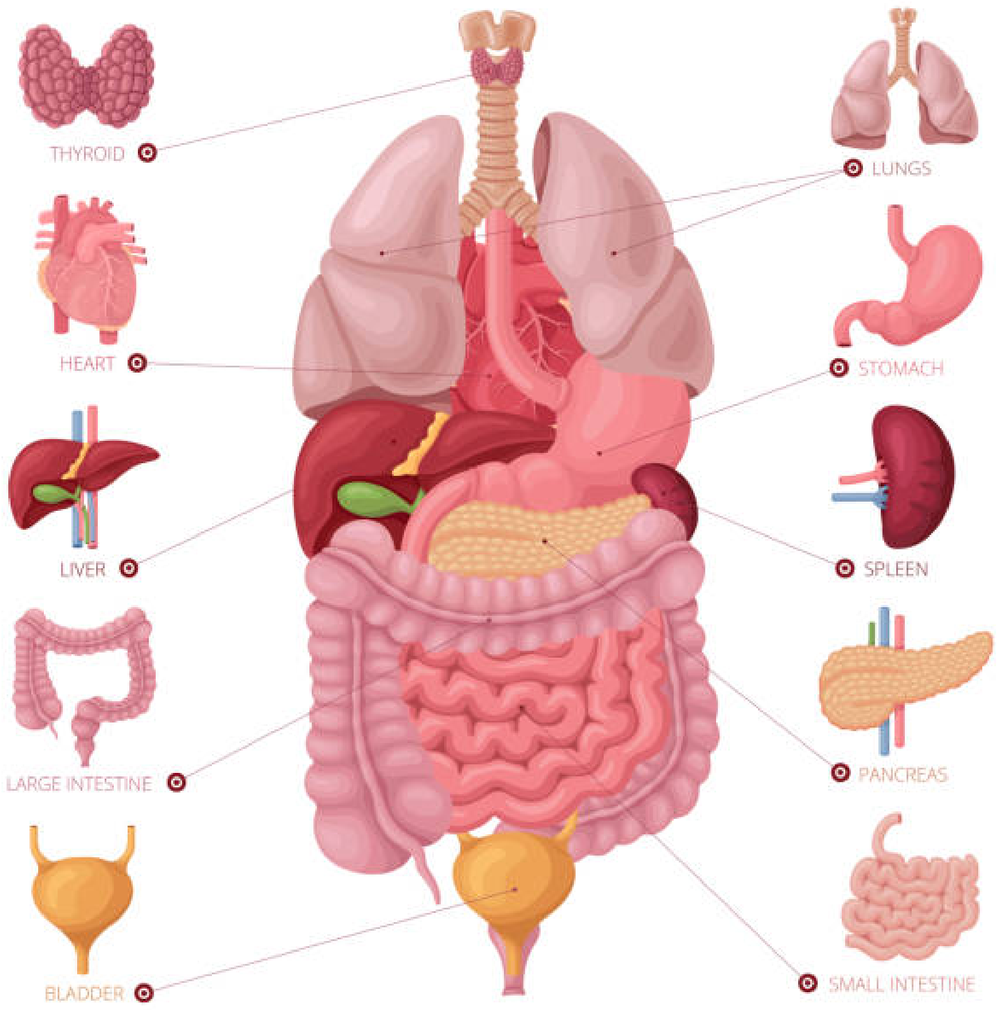
Q5. (3) Synapse

Passage - 5

5 Marks

Answer Key 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 .

Q1. (1) Pancreas

Q2. (1) Insulin

Q3. (1) Diabetes

Q4. (2) Diabetic person

Q5. (3) Liver