Answer Key 7.5

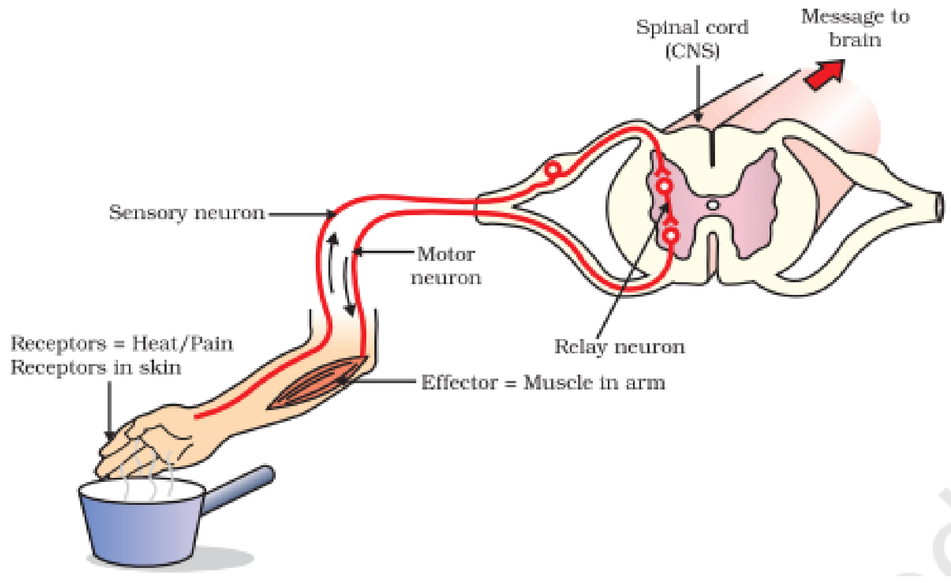
Marks - 25

Case study based questions

10th Science

Control And Coordination

Passage - 1 **5 Marks**



When we touch a hot plate unknowingly, then this heat is sensed by a receptor P present in our fingers. The receptor triggers an impulse in neuron Q which transmits the message to an organ R which is a part of the central nervous system. Here the impulse is passed on to a neuron S which in turn passes it to a yet another neuron T. The neuron T passes the impulse to a tissue U in our arm. The tissue U then contracts and pulls our hand away from the hot plate. Read the given paragraph and look at the image above. Now, answer the following questions:

Q1. (1) Thermoreceptor

Q2. (2) Spinal cord

Q3. (3) Relay neuron

Q4. (1) Reflex action

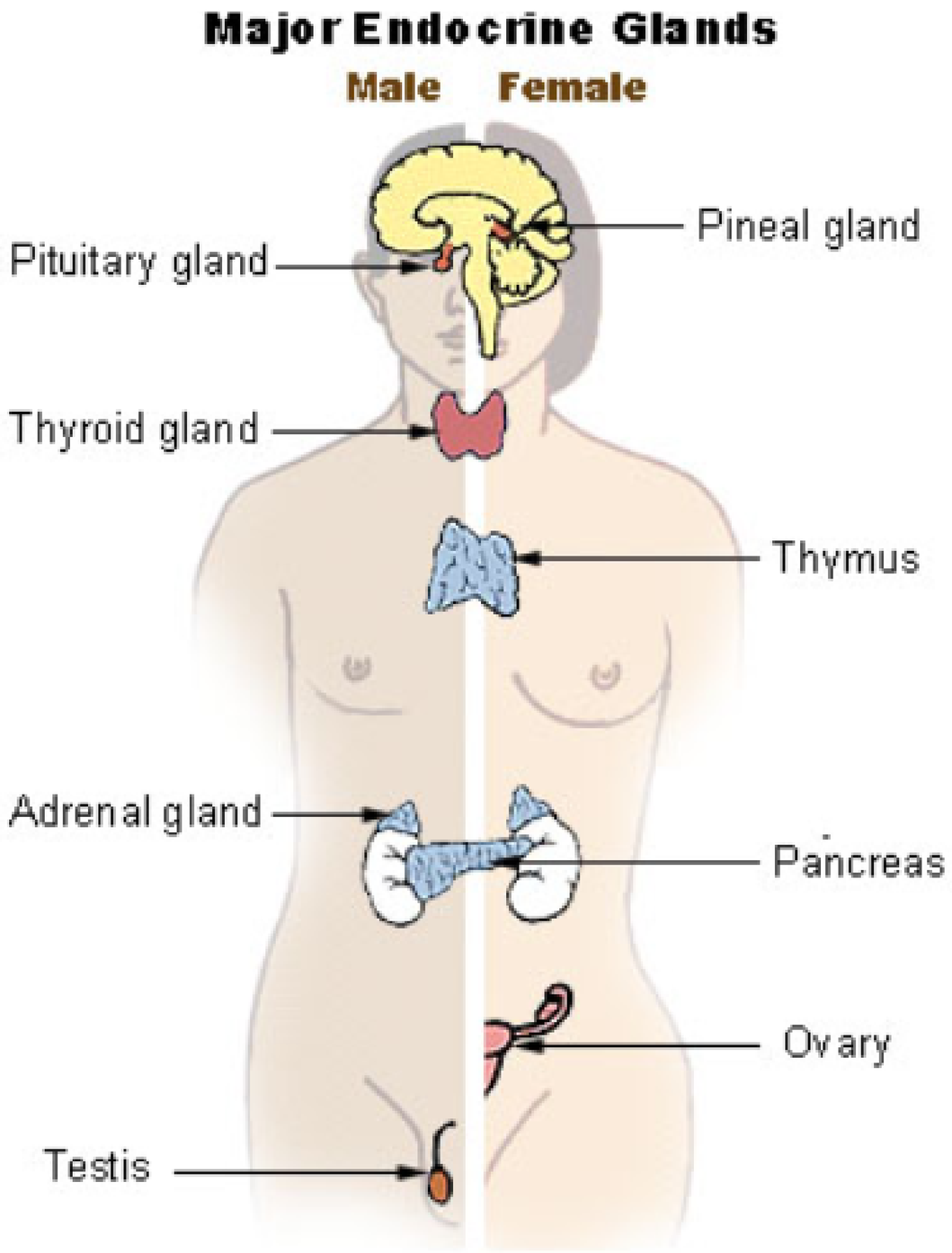
Q5. (1) Muscle (of arm)

Answer Key 7.5

Marks - 25

Passage - 2

5 Marks



Hormones are chemical substances secreted in very small amounts by specialised tissues in the body called endocrine glands. These hormones coordinate the activities of living organisms and also their growth. Hormones are made inside the body of an organism in very small amounts. They are secreted in small amounts by the endocrine glands and are poured directly into the blood and carried throughout the body by blood circulatory system. The hormones have their effect at the sites different from the sites where they are made. They act on specific tissues or organs. Now, answer the following questions:

Q1. (3) Target organs

Q2. (2) FALSE

Answer Key 7.5

Marks - 25

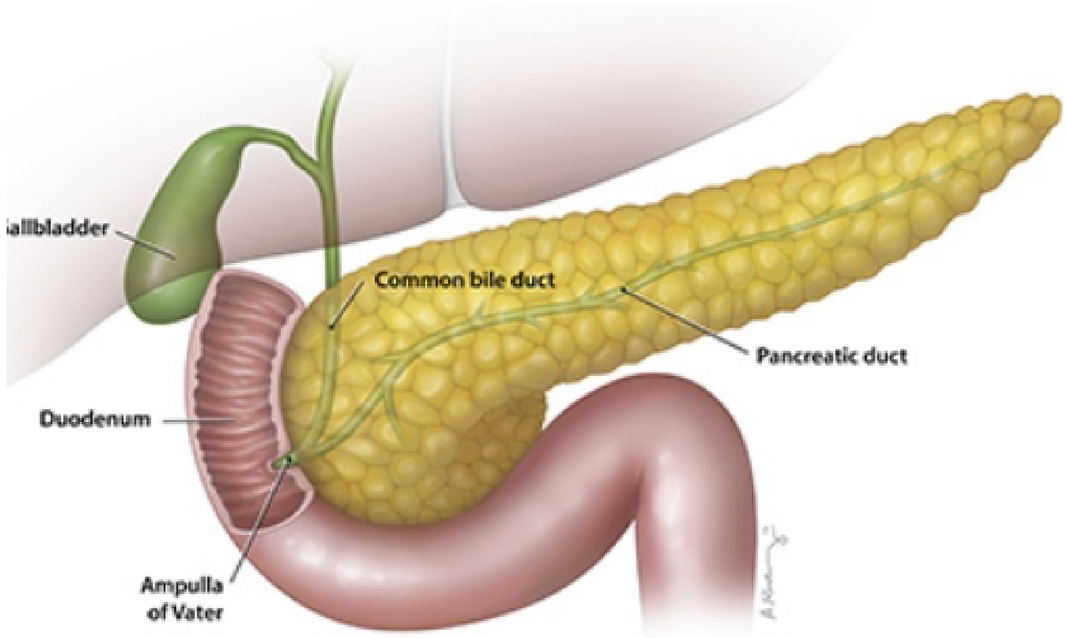
Q3. (1) TRUE

Q4. (2) Chemical messengers

Q5. (1) TRUE

Passage - 3

5 Marks



Pancreas secretes the hormone called insulin. The function of insulin hormone is to lower the blood sugar level. Deficiency of insulin hormone in the body causes a disease known as diabetes. Diabetes disease is characterised by large quantities of sugar in the blood. The insulin hormone controls the metabolism of sugar. If, due to some reason, pancreas does not produce and secrete sufficient amount of insulin into blood, then the sugar level in the blood rises. The high sugar level in the blood can cause many harmful effects to the body of a person. The person having high sugar level in blood (or diabetes) is called a diabetic. Now, answer the following questions:

Q1. (2) Stomach

Q2. (1) TRUE

Q3. (3) Pancreas

Answer Key 7.5

Marks - 25

Q4. (1) Large quantities of sugar in the blood

Q5. (2) FALSE

Passage - 4 **5 Marks**

The cerebrum is the main thinking part of the brain. It is the site of our faculties such as learning, reasoning, intelligence, personality and memory. All our thoughts, sensations, actions and movements are controlled by the cerebrum. The cerebrum has different areas for performing different functions. There are association areas in cerebrum which control thinking and memory. These association areas also store information and experiences. There are sensory areas where information is received from the sense organs like eyes, ears, nose, tongue and skin, and give us the 'sensation' or 'feeling'. Similarly, cerebrum has motor areas from which instructions are sent to muscles to do various types of jobs. Now, answer the following questions:

Q1. (1) TRUE

Answer Key 7.5

Marks - 25

Q2. (2) FALSE

Q3. (1) TRUE

Q4. (1) TRUE

Q5. (1) TRUE

Passage - 5

5 Marks

The brain is located inside the skull of our body (at the top of the spinal cord). It is protected by a bony box in the skull called cranium. The brain is surrounded by three membranes called meninges, which help to protect it. The space between the membranes (or meninges) is filled with a cerebro spinal fluid which protects the brain from mechanical shocks. Pairs of cranial nerves arise from the brain. Now, answer the following questions:

Q1. (1) TRUE

Answer Key 7.5

Marks - 25

Q2. (2) Cerebro spinal fluid

Q3. (1) Cranium

Q4. (2) FALSE

Q5. (1) TRUE

Answer Key 7.6

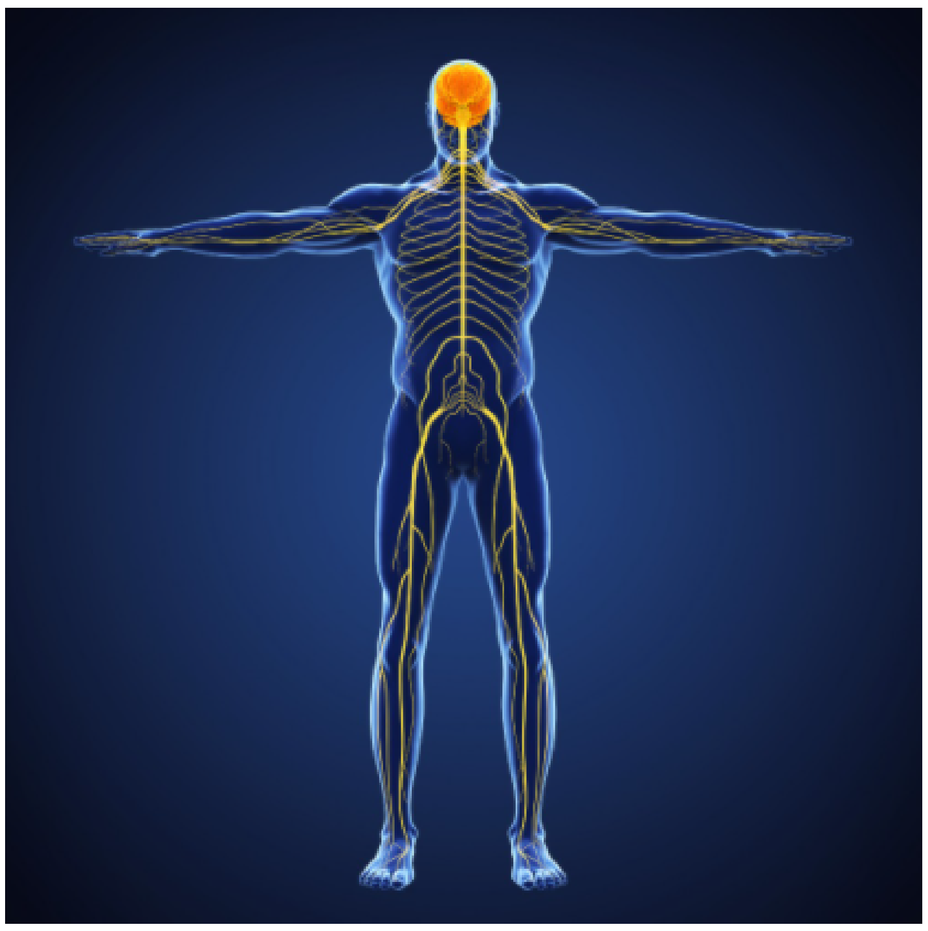
Marks - 25

Case study based questions

10th Science

Control And Coordination

Passage - 1 **5 Marks**



The units which make up the nervous system are called nerve cells or neurons. So, neuron is the structural and functional unit of the nervous system. We can now say that nervous system is made of special cells called neurons. Neuron is the largest cell in the body (which looks like an electric wire). Neurons contain the same basic parts as any other animal cell but their structure is specially adapted to be able to carry messages over large distances in the body quickly. The neurons carry messages in the form of electrical signals called electrical impulses or nerve impulses. Now, answer the following questions:

Q1. (2) FALSE

Q2. (1) Largest

Q3. (2) Very quickly

Answer Key 7.6

Marks - 25

Q4. (1) Can

Q5. (1) TRUE

Passage - 2 **5 Marks**

A potted plant is growing in a transparent glass jar. In this plant, X and Y are the two growing parts having a lot of meristematic tissue. It is observed that the part X of this plant exhibits positive geotropism but negative phototropism. On the other hand, part Y of this plant exhibits negative geotropism but positive phototropism. Now, answer the following questions:

Q1. (1) Root

Q2. (2) Shoot

Q3. (1) X

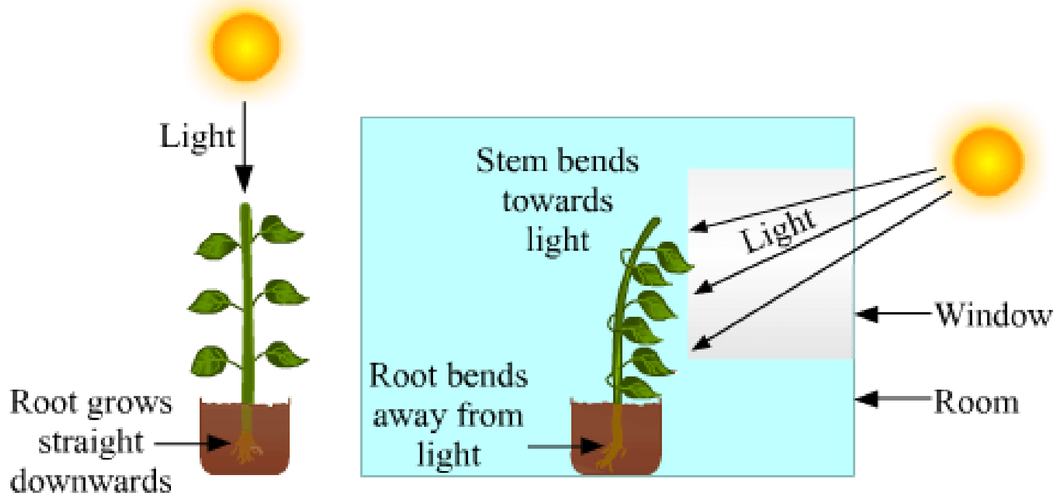
Q4. (2) Y

Answer Key 7.6

Marks - 25

Q5. (1) Auxin

Passage - 3 **5 Marks**



The chemical substance P is made and secreted by the meristematic tissue at the tip of stem (or shoot) of a plant. The chemical substance P is responsible for a phenomenon Q in plants in which the stem bends towards a source of light. The same chemical substance P has an opposite effect on the root of a plant. It causes the root of a plant to bend away from the source of light in a process called R. Now, answer the following questions:

Q1. (1) Auxin

Q2. (2) In shade

Q3. (1) Positive phototropism

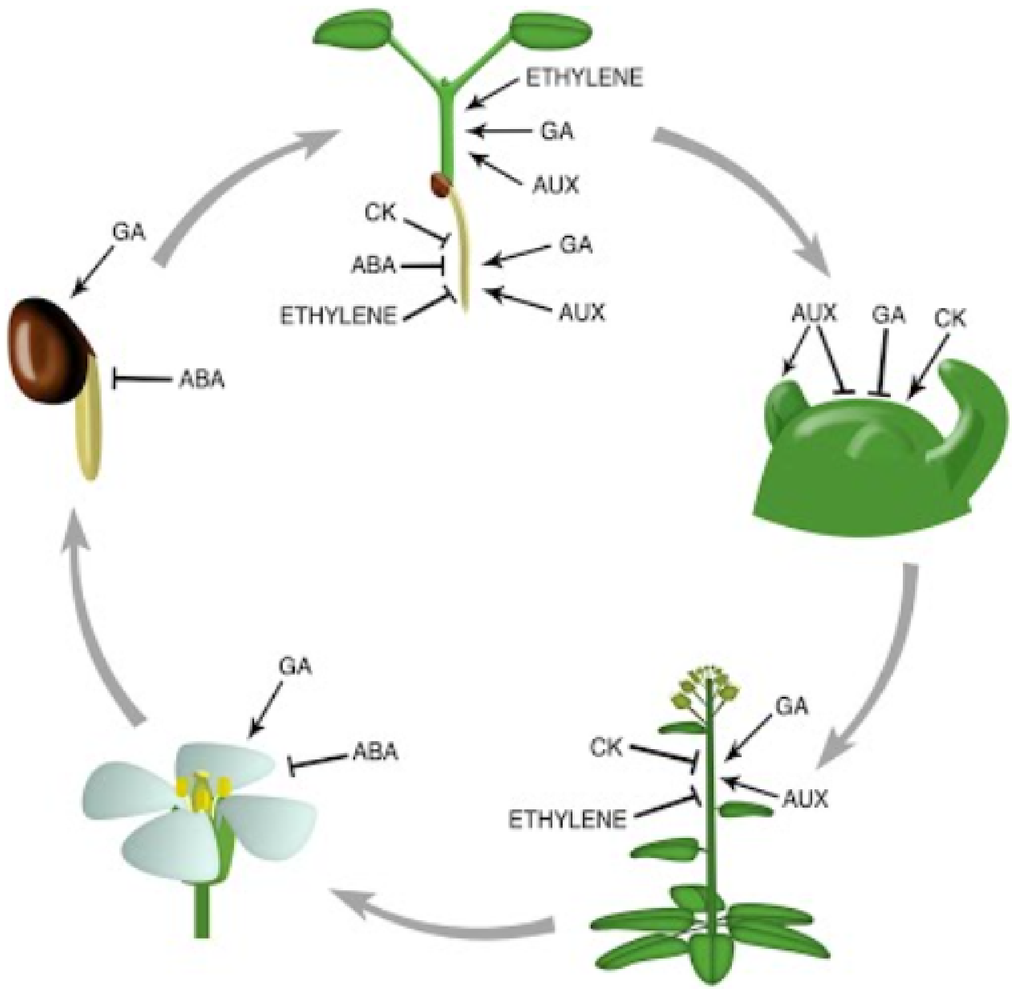
Q4. (2) Negative phototropism

Q5. (1) Plant hormones

Passage - 4 **5 Marks**

Answer Key 7.6

Marks - 25



The plant hormones (or phytohormones) regulate many functions in plants.
The various functions in plants which are regulated by the plant hormones (or phytohormones) are :
1. Germination of seeds (or Breaking the dormancy of seeds),
2. Growth of root, stem and leaves,
3. Movement of stomata (or stomatal movement) in leaves,
4. Flowering of plants,
5. Ripening of fruits, and
6. Phototropism, geotropism, chemotropism, hydrotropism, thigmotropism and nastic movements. Now, answer the following questions:

Q1. (4) Cytokinin

Q2. (1) YES

Q3. (1) YES

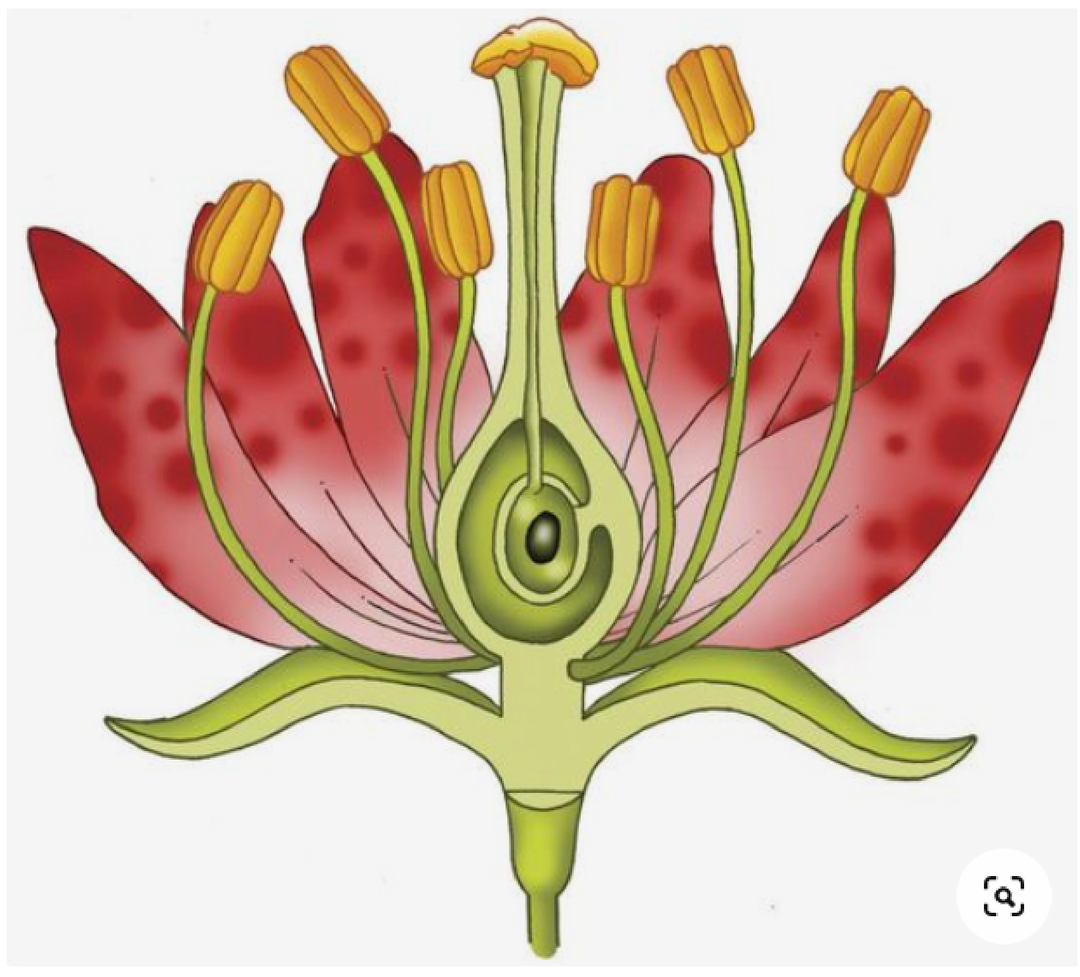
Q4. (1) YES

Answer Key 7.6

Marks - 25

Q5. (2) NO

Passage - 5 **5 Marks**



The top part A of the flask-shaped reproductive organ X in the flower of a plant secretes a surgery substance into its lower part B which goes towards the bottom part C of the flask- shaped organ. When a tiny grain D coming from the top part E of another reproductive organ Y in the flower falls on part A, it grows a long tube F through the organ X in response to the sugary substance and reaches the bottom part C of flask-shaped organ to carry out fertilisation. Now, answer the following questions:

Q1. (2) Carpel

Q2. (1) Stamen

Q3. (1) Stigma

Q4. (2) Style

Answer Key 7.6

Marks - 25

Q5. (1) Ovary
