Worksheet 7.5

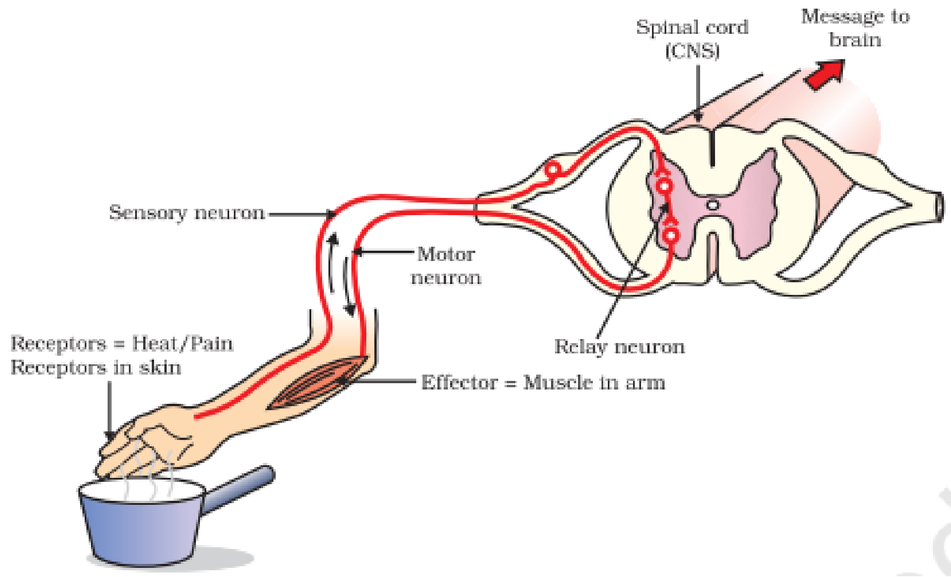
Marks - 25

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:

Q 1. What is the name of receptor P ?

(1) Thermoreceptor
(2) Olfactory receptors
(3) Taste receptors
(4) None of the above

Q 2. Name the organ R.

(1) Heart
(2) Spinal cord

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(3) Kidney
(4) Lungs

Q 3. What is neuron S ?

(1) Motor neuron
(2) Sensory neurons,
(3) Relay neuron
(4) None of the above

Q 4. What name is given to the phenomenon in which hand is pulled away quickly from the hot plate ?

(1) Reflex action
(2) Thermal action

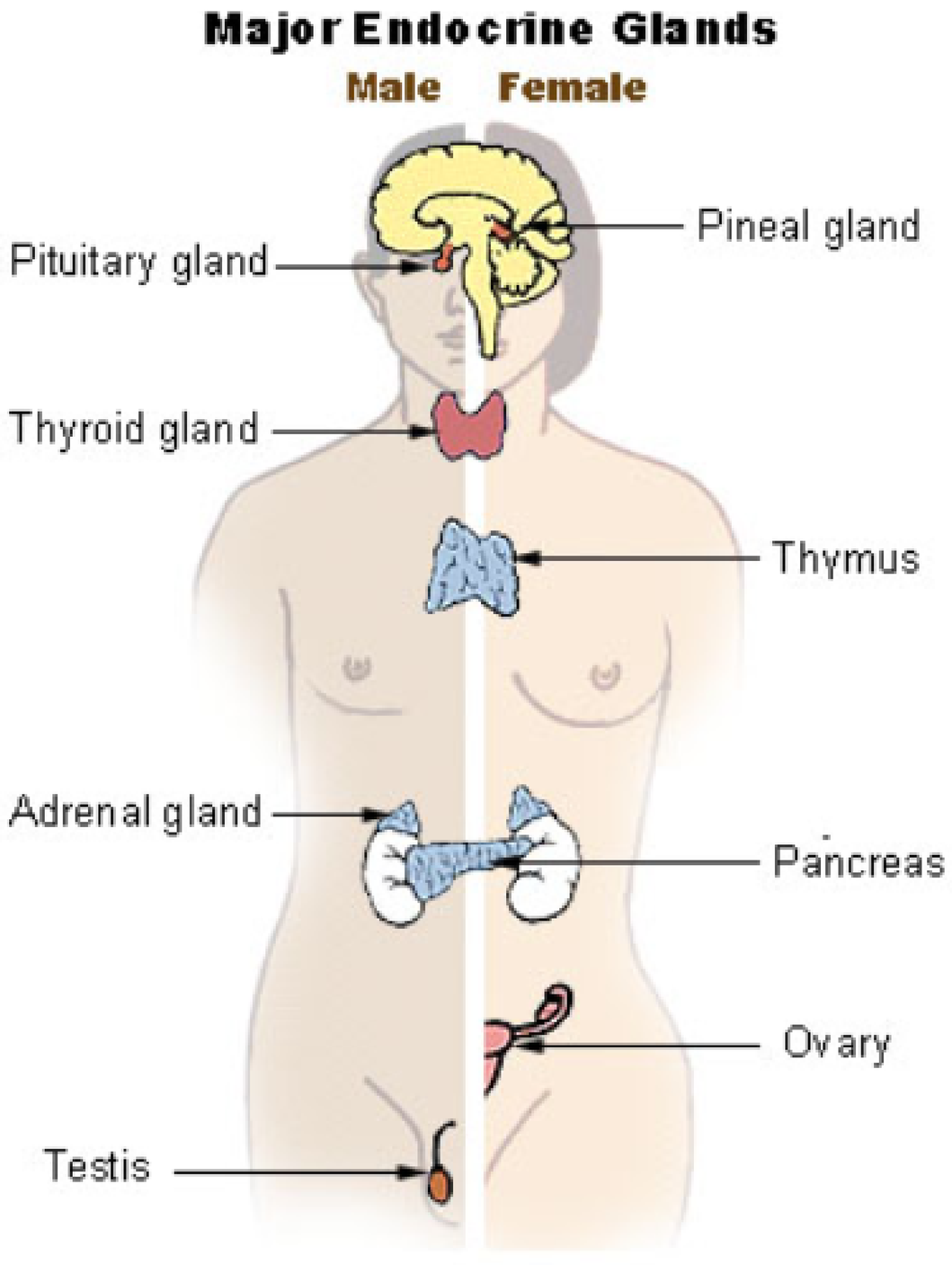
Q 5. Name the effector in this whole process.

(1) Muscle (of arm)
(2) Muscle (of leg)
(3) Bone of arm

Passage - 2 **5 Marks**

Worksheet 7.5

Marks - 25



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:

Q 1. The hormones act on specific organs is called _____

(1) Target glands
(2) Harmonal tissues
(3) Target organs
(4) None of the above

Worksheet 7.5

Marks - 25

Q 2. State true or false: The hormones are secreted in large amounts by the endocrine glands.

(1) TRUE
(2) FALSE

Q 3. State true or false: The hormones coordinate the activities of the body.

(1) TRUE
(2) FALSE

Q 4. The hormones have their effect at the sites different from the sites where they are made. So, they are also called _____.

(1) Physical messengers
(2) Chemical messengers
(3) Thermal messengers
(4) None of the above

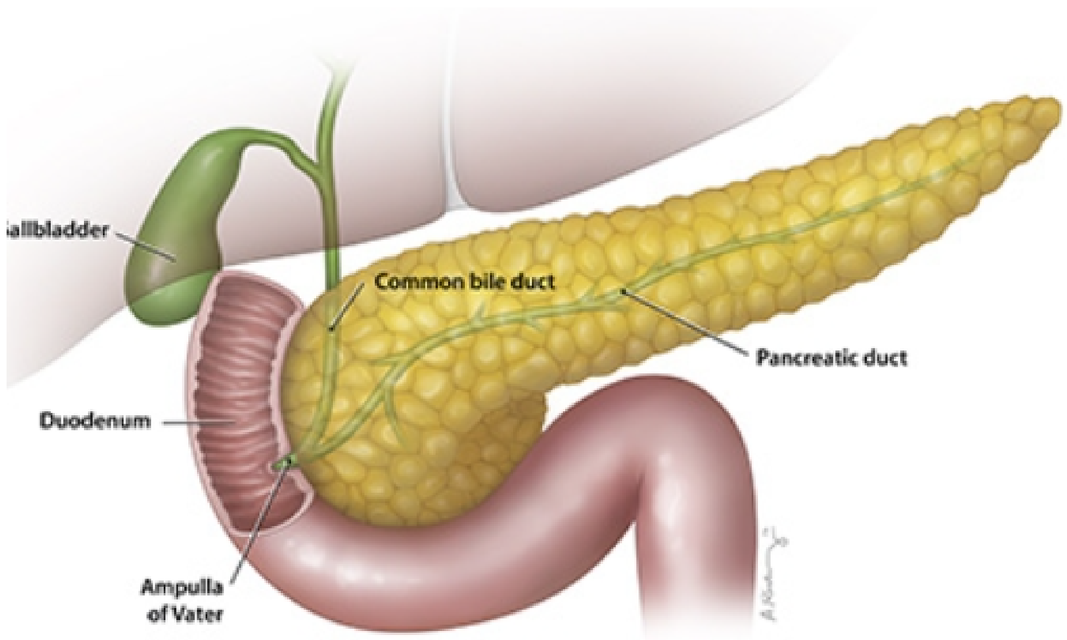
Q 5. State true or false: Hormones are the chemical substances which coordinate the activities of living organisms and also their growth.

(1) TRUE
(2) FALSE

Passage - 3 **5 Marks**

Worksheet 7.5

Marks - 25



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:

Q 1. The pancreas is just below the ____ in the body.

(1) Brain
(2) Stomach
(3) Liver
(4) Kidney

Q 2. State true or false: The function of insulin hormone is to lower the blood glucose level.

(1) TRUE
(2) FALSE

Q 3. Insulin is secreted by _____

(1) Liver
(2) Endocrine gland
(3) Pancreas
(4) Kidney

Q 4. Diabetes is caused by ____

(1) Large quantities of sugar in the blood
(2) Large quantities of protien in the blood
(3) Large quantities of vit C in the blood
(4) Large quantities of iron in the blood

Q 5. State true or false: The persons having severe diabetes cannot be treated.

(1) TRUE
(2) FALSE

Passage - 4

5 Marks

Worksheet 7.5

Marks - 25

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:

Q 1. State true or false: All the voluntary actions of the body are coordinated by the cerebrum.

(1) TRUE
(2) FALSE

Q 2. State true or false: The cerebrum is also known as hindbrain.

(1) TRUE
(2) FALSE

Q 3. State true or false: The cerebrum has different areas for performing different functions.

(1) TRUE
(2) FALSE

Q 4. State true or false: cerebrum has motor areas from which instructions are sent to muscles to do various types of jobs.

(1) TRUE

(2) FALSE

Q 5. State true or false: The cerebrum receives sensory information through the receptors of sense organs.

(1) TRUE

(2) FALSE

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:

Q 1. State true or false: Brain is the highest coordinating centre in the body.

(1) TRUE

(2) FALSE

Q 2. The space between the meninges is filled with _____

(1) Cerebral spinal fluid
(2) Cerebro spinal fluid

Q 3. Brain protected by a bony box in the skull called _____

(1) Cranium
(2) Cerebrum

Q 4. State true or false: The brain is located in the bottom of the spinal cord.

(1) TRUE
(2) FALSE

Q 5. State true or false: The cerebrum is the main thinking part of the brain.

(1) TRUE
(2) FALSE

Worksheet 7.6

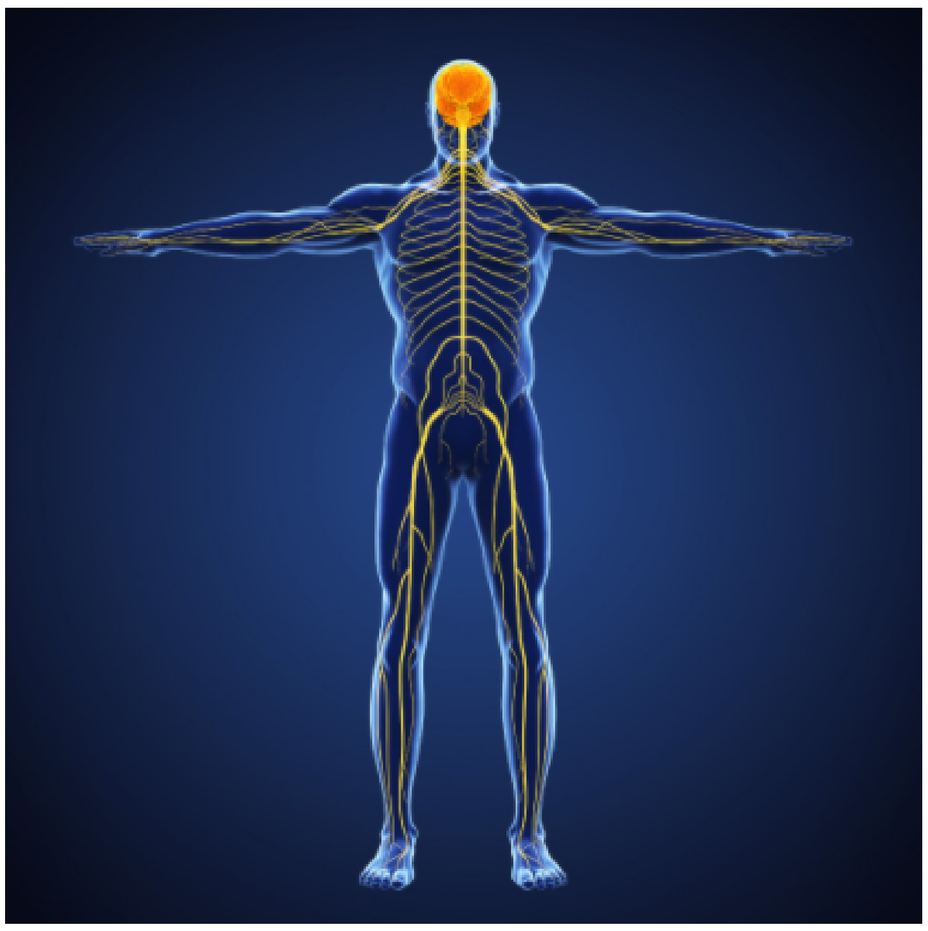
Marks - 25

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:

Q 1. State true or false: Neurons are different from nerve cells.

(1) TRUE
(2) FALSE

Q 2. Neuron is the ____ cell in the human body.

---

(1) Largest
(2) Smallest

Q 3. Neurons carry the messages _____

(1) Very slowly
(2) Very quickly

Q 4. Neurons ____ carry the messages over large distances.

(1) Can
(2) Can not

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

(1) TRUE
(2) FALSE

Passage - 2

5 Marks

Worksheet 7.6

Marks - 25

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:

Q 1. Name the part X of plant.

(1) Root
(2) Shoot

Q 2. Name the part Y of plant.

(1) Root
(2) Shoot

Q 3. Which part of the plant, X or Y, will exhibit positive hydrotropism ?

(1) X
(2) Y

Q 4. Which part of the plant, X or Y, can have tendrils on it ?

(1) X
(2) Y

Q 5. Which phytohormone causes the part X to exhibit negative phototropism ?

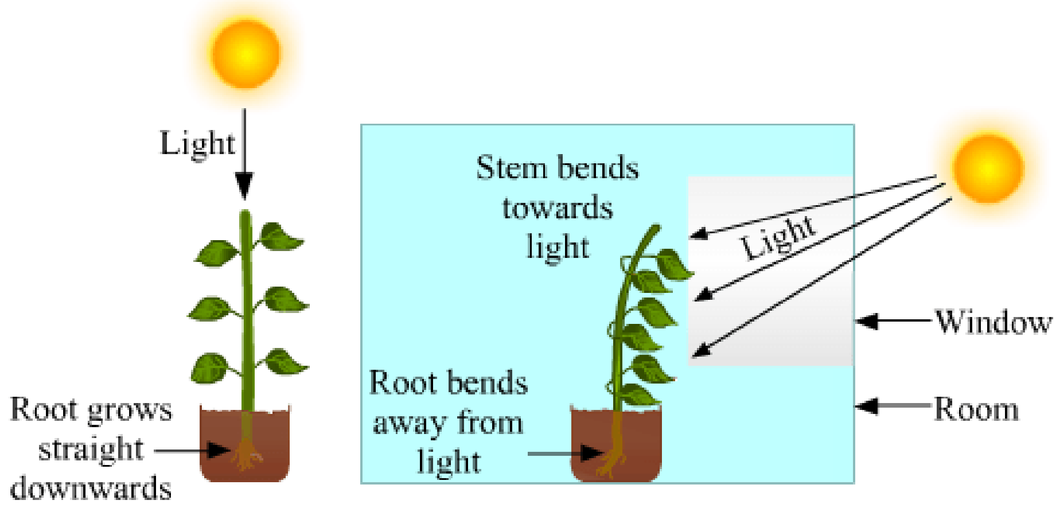
(1) Auxin
(2) Abscisic acid

Worksheet 7.6

Marks - 25

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:

Q 1. What is the chemical substance P ?

(1) Auxin
(2) Abscisic acid

Q 2. State whether P prefers to remain in the sunlit side of a stem or in shade.

(1) In sunlit area
(2) In shade

Q 3. What is the name of process Q?

(1) Positive phototropism
(2) Negative phototropism

Worksheet 7.6

Marks - 25

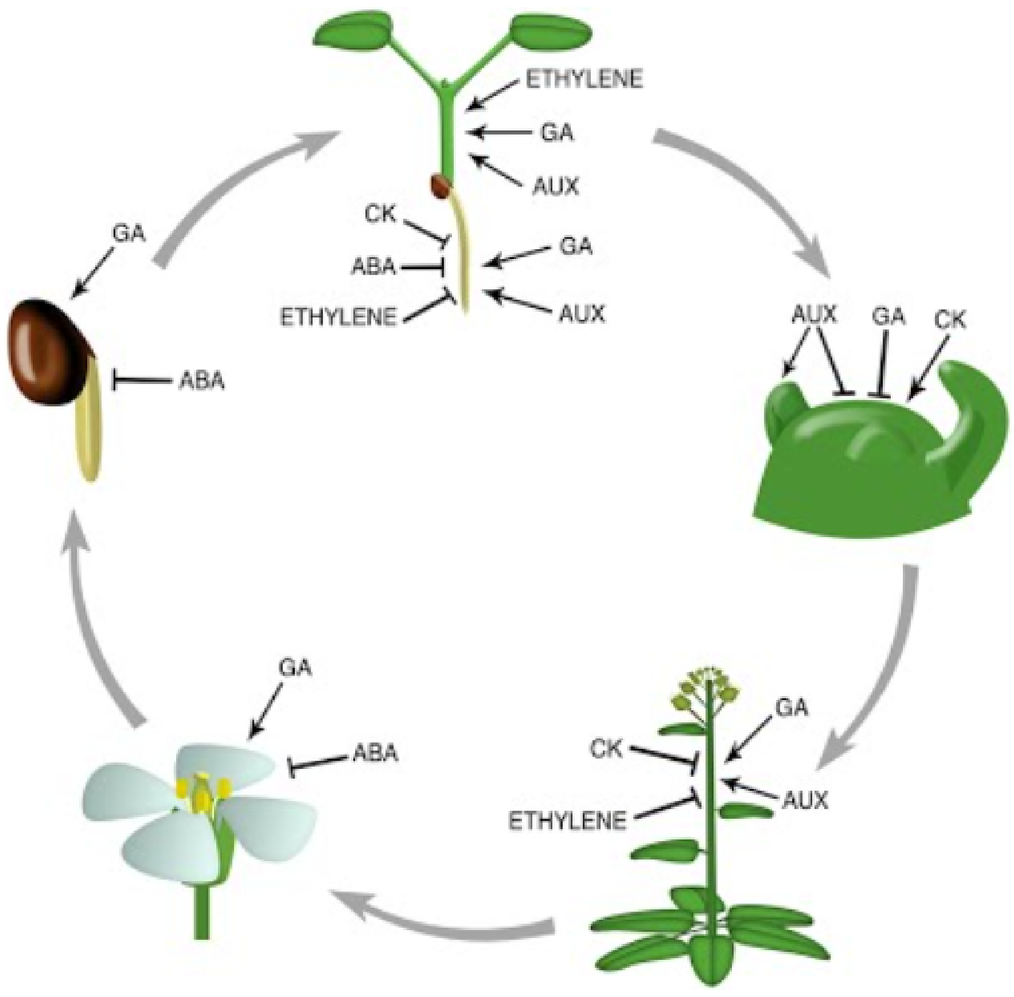
Q 4. What is the name of process R?

(1) Positive phototropism
(2) Negative phototropism

Q 5. What is the general name of chemical substances like P ?

(1) Plant hormones
(2) Plant ketones

Passage - 4 **5 Marks**



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:

Worksheet 7.6

Marks - 25

Q 1. Which of the following is a plant hormone ?

(1) Insulin
(2) Thyroxine
(3) Oestrogen
(4) Cytokinin

Q 2. Does auxins promotes the growth of a tendril around a support?

(1) YES
(2) NO

Q 3. Is the following a function of plant hormones: Flowering of plants

(1) YES
(2) NO

Q 4. Is the following a function of plant hormones: Growth of root

(1) YES
(2) NO

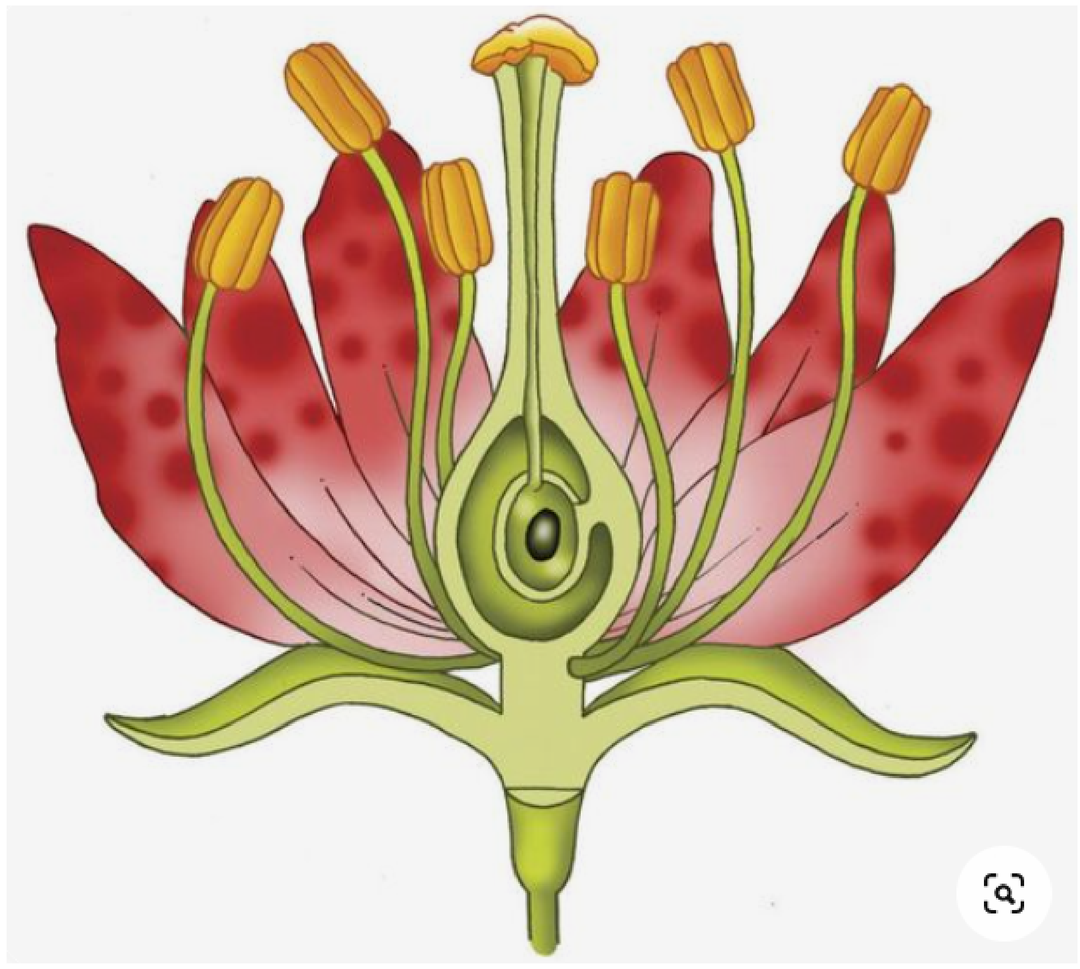
Q 5. Is the following a function of plant hormones: Converting carbon dioxide to oxygen.

(1) YES
(2) NO

Passage - 5 **5 Marks**

Worksheet 7.6

Marks - 25



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:

Q 1. What is organ X?

(1) Stigma
(2) Carpel

Q 2. What is organ Y?

(1) Stamen
(2) Carpel

Q 3. What is organ A?

(1) Stigma
(2) Stamen

Q 4. What is organ B?

(1) Ovary
(2) Style

Q 5. What is organ C?

(1) Ovary
(2) Stigma