SCIENCE
WORKSHEET_240824
CHAPTER 06 CONTROL AND COORDINATION

SUBJECT: SCIENCE **MAX. MARKS : 40**

CLASS : X **DURATION : 1½ hrs**

General Instructions:

(i). **All** questions are compulsory.

(ii). This question paper contains 2**0** questions divided into five Sections A, B, C, D and E.

(iii). **Section A** comprises of **10 MCQs** of **1 mark** each. **Section B** comprises of 4 questions of **2 marks** each. **Section C** comprises of 3 questions of **3 marks** each. **Section D** comprises of 1 question of **5 marks** each and **Section E** comprises of 2 Case Study Based Questions of **4 marks** each.

(iv). There is no overall choice.

(v). Use of Calculators is not permitted

SECTION – A

Questions 1 to 10 carry 1 mark each.

1. Which is the correct sequence of the components of a reflex arc?
(a) Receptors → Muscles → Sensory neuron → Motor neuron → Spinal cord
(b) Receptors → Motor neuron → Spinal cord → Sensory neuron → Muscle
(c) Receptors → Spinal cord → Sensory neuron → Motor neuron → Muscle
(d) Receptors → Sensory neuron → Spinal cord → Motor neuron → Muscle

2. The main function of abscisic acid in plants is to:
(a) increase the length of cells (b) promote cell division
(c) inhibit growth (d) promote growth of stem.

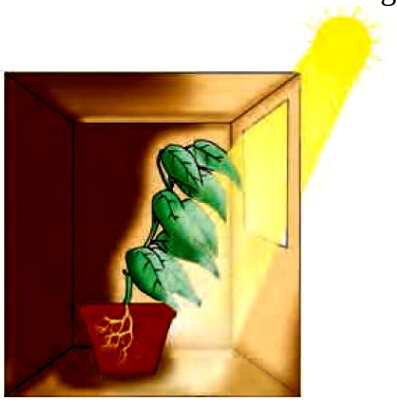
3. Which of the following statements are correct?
(I) Hormones are released directly into the bloodstream.
(II) Endocrine glands use electrical impulses.
(III) Sex hormones regulate changes associated with puberty.
Options:
(a) (I) and (II) (b) (I) and (III) (c) (II) and (III) (d) (I), (II) and (III)

4. Select from the following the correct statement about tropic movement in plants.
(a) It is due to stimulus of touch and temperature.
(b) It does not depend upon the direction of stimulus received.
(c) It is observed only in roots and not in stems.
(d) It is a growth related movement.

5. A wave of electrical activity that passes through nervous system neurons is called an electrical impulse. Specialized cells called neurons are in charge of information transmission throughout the body. What could be the possible limitation of electric impulse?
(a) The electric impulses travel slowly between the neurons.
(b) The electric impulses allow signal transmission in multiple directions.
(c) The electric impulses are transmitted to only those body parts that are connected to neurons.
(d) The electric impulses once generated needs to be transmitted quickly within the body.

6. Height of a plant is regulated by:
(a) DNA which is directly influenced by growth hormone.
(b) genes which regulate the proteins directly.
(c) growth hormones under the influence of the enzymes coded by a gene.
(d) growth hormones directly under the influence of a gene.

7. Akshay potted some germinated seeds in a pot. He put the pot in a cardboard box that was open from one side. He keeps the box in a way that the open side of box faces sunlight near his window. After 2-3 days, he observes the shoot bends towards light as shown in image.



Which type of tropism did he observe?
(a) Hydrotropism (b) Phototropism (c) Geotropism (d) Chemotropism

8. Rajesh noticed that a potted plant kept in the window of his room shows bending towards sunlight. This could be due to:
(a) More growth in the well lit region due to diffusion of auxin hormone.
(b) More growth in the region away from light due to diffusion of auxin hormone.
(c) More growth in the well lit region due to diffusion of cytokinin hormone.
(d) More growth in the region away from light due to diffusion of cytokinin hormone.

In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

9. **Assertion (A):** Auxin helps the cells of stem grow longer.
Reason (R): Auxin is a growth inhibitor.

10. **Assertion (A):** The timing and amount of hormone released is regulated by feedback mechanisms.
Reason (R): Over-secretion and under- secretion of hormones is harmful for the body.

SECTION – B

Questions 11 to 14 carry 2 marks each.

11. (a) Draw the structure of a neuron and label the following on it: Nucleus, Dendrite, Cell body and Axon.
(b) Name the part of neuron:
(i) Where information is acquired.
(ii) Through which part information travels as an electrical impulse.

12. List two different functions performed by pancreas in our body.

13. How do auxins promote the growth of a tendril around a support?

14. (a) Name the endocrine gland which is responsible for causing Goitre.
(b) Which part of the human brain helps in eyeball movement?
(c) Classify the following movement as Tropic or Nastic.
Drooping of leaves of Mimosa pudica, on touching.

(d) Ram rides a bicycle maintaining posture and body equilibrium. Identify the part of brain which controls this activity.

SECTION – C

Questions 15 to 17 carry 3 marks each.

15. Nervous and hormonal system together perform the function of control and coordination in human beings. Justify the statement.

16. A cheetah, on seeing a prey, moves towards him at a very high speed. What causes the movement of his muscles? How does the chemistry of cellular components of muscles change during this event?

17. What is feedback mechanism of hormonic regulation? Take the example of insulin to explain this phenomenon.

OR

How do control and coordination in plants differ from that in animals? Give any FOUR points of difference.

SECTION – D

Questions 18 carry 5 marks.

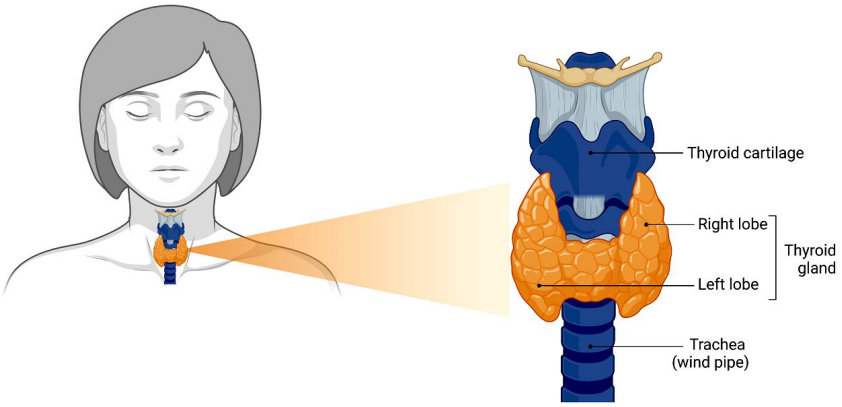
18. (i) What are cranial and spinal nerves? Describe a spinal nerve.
(ii) Draw a diagram of the human brain and label the following parts:
(a) Cerebrum (b) Meninges (c) Medulla oblongata (d) Cerebellum

SECTION – E (Case Study Based Questions)

Questions 19 to 20 carry 4 marks each.

19. Read the given passage and answer the questions based on passage and related studied concepts.

Thyroid gland is a bilobed structure situated in our neck region. It secretes a hormone called thyroxine. Iodine is necessary for the thyroid gland to make thyroxine. Thyroxine regulates carbohydrate, protein and fat metabolism in the body. It promotes growth of body tissues also.



When there is an excess of thyroxine in the body, a person suffers from hyperthyroidism and if this gland is underactive it results in hypothyroidism. Hyperthyroidism is diagnosed by blood tests that measure the levels of thyroxine and Thyroid Stimulating Hormone (TSH). Hypothyroidism is caused due to the deficiency of iodine in our diet resulting in a disease called goitre.

(a) Where is thyroid gland situated in our body? [1]
(b) State the function of thyroxine in human body. [1]
(c) What is hyperthyroidism? How can we control hypothyroidism? [2]

20. Rajesh accidentally touched a thorn but quickly withdrew his hand. He later realized that he did this without even thinking about it! So, his reflexes were quite quick.

(a) What is the main centre for such reflex actions of Rajesh?
(b) In a neuron, the conversion of electrical signal to a chemical signal occurs at which part?
(c) What are electrical impulses? Write any two limitations of electrical impulses.