

## CHAPTER-7

### CONTROL AND COORDINATION

#### HOTS: (High Order Thinking Skill) Questions with Answers:

- Q.1) On touching a hot plate, you suddenly withdraw your hand. Which category of neurons became active first and which one next?
- Q.2) Give one example of plant part.
- a. Which is positively hydrotropic as well as positively geotropic.
  - b. Which is positively phototropic but negatively geotropic.
- Q.3) What name is given to the microscopic gap between two adjacent neurons?
- Q.4) If we step on something sharp accidentally we move our foot away at once .what is this type of response known as?
- Q.5) A part of the hind brain makes possible activities like walking, skating, riding a bicycle and picking up a pencil.name this part of the hind brain.
- Q.6) The neck of a person appears to be swollen.
- a. Name the disease this person suffering from.
  - b. Name the mineral whose deficiency in the diet causes this disease.
- Q.7) Name the plant hormone:
- (a) which inhibits growth and causes wilting of leaves.
  - (b) which promotes cell division.
- Q.8) Taking the example of heart beat, justify the antagonistic action of the sympathetic and the parasympathetic nerves.
- Q.9) Why is abscisic acid known as stress hormone in plants?
- Q.10) Name the part of neuron
- (a) where information is acquired.
  - (b) through which information travels as an electrical impulse.
- Q.11) How does the plant shoot bends, when the plant is placed in a room having only one open window?
- Q.12) Who transmits nerve impulse across the synapse?
- Q.13) Give a reason to explain why
- (a) adrenaline helps in dealing emergency situations?
  - (b) secretions of growth hormone should be specific in the human body?
- Q.14) Why do leaves drop off seasonally?
- Q.15) Give reason why endocrine glands release their secretions into the blood?

#### **ANSWERS**

Ans.1) On touching a hot plate, first the sensory neurons are activated, which take the information to the brain or the spinal cord. Next, the motor neurons become active and bring the impulses from the brain to the muscles. In receiving these impulses, the muscles contract, and the hand is immediately removed from the hot plate.

Ans.2) a. roots

b. stem

Ans.3) Synapse

Ans.4) Reflex action

Ans.5) Cerebellum

Ans.6) a. Goitre

b. Iodine

Ans.7) a. Abscisic acid.

b. Cytokinins.

Ans.8) Sympathetic system increases contraction and rhythm and parasympathetic system decreases contraction and rhythm with respect to heart beat.

Ans.9) Absciscic acid is a plant hormone which inhibits growth. Its effects include wilting of leaves.

Ans.10) a. Dendrite

b. Axon

Ans.11) When the plant is placed in such a room that has only one open window, the shoot of the plant bends towards the direction of light. Plant hormone auxin is formed that diffuses towards the shady side of the shoot and stimulates the cells to live longer on the side of the shoot which is away from light. In this way the shoot bends towards the light.

Ans.12) Neurotransmitters.

Ans.13) a. Adrenaline increases the heart beat and breathing rate which results in the supply of more oxygen to muscles. It reduces the blood to the digestive system and skin, as a result the blood is further diverted to skeletal muscles. All these responses together prepare the body to deal with the emergency situations.

b. If growth hormones are secreted in excess during childhood then it leads to gigantism while the less secretion of this hormone during childhood causes dwarfism.

Ans.14) The leaves drop off seasonally as they stop producing auxins, which normally prevents the formation of abscission zone that cuts off nutrients and water supply to leaves.

Ans.15) Endocrine glands are ductless glands and their products have to act at a distant site.

Therefore, they release their secretions into the blood.

### **QUESTION BANK FOR PRACTICE**

Q1. A particular hormone requires Iodine for its synthesis. Name the endocrine gland which secretes this hormone and state its location in the human body.

Q2. Write a term for the chemical substance which brings about control and coordination in plants?

Q3. What is apical dominance?

Q4. Name the organ associated with the nervous system which is also part of the endocrine system and secretes hormone.

Q5. Why are hormones called informational molecules?

Q6. Why do leaves of "touch me not" plant droop when we touch it?

Q7. Name the structural and functional unit of the nervous system.

Q8. What is the difference between the manner in which movement in the sensitive plant and movement in our legs takes place?

Q9. Why do people in the mountainous regions get goitre?

Q10. What is a synaptic cleft?

Q11. What are the scientific names for the following receptors in humans?

a) Receptors of smell

b) Receptors of taste

Q12. Which hormone is responsible for the development of moustache and beard in men?

Q13. How do we detect the smell of an agarbatti?

Q14. Why do stem and root show unilateral growth towards light and gravity of earth respectively?

- Q15. Which part of the brain controls involuntary actions such as blood pressure, salivation and vomiting?
- Q16. Justify that the pancreas and gonads perform dual function.
- Q17. Why are some patients of diabetes treated by giving injections of insulin?
- Q18. Pituitary gland is often called as master gland. Why?
- Q19. How can thyroid activity be determined in man?
- Q20. Do the plants have nervous plants like animals? If not, how control and coordination takes place in plants?
- Q21. Nervous and hormonal systems together perform the function of control and coordination in human beings. Justify the statement.
- Q22. Which hormone is released into blood when its sugar level rises? Name the organ which produces the hormone and its effect on blood sugar level. Also name one digestive enzyme that this organ secretes and the function of this enzyme
- Q23. Describe how auxins are related with the bending of shoots towards the source of light.
- Q24. Define nerve impulse. Which structure in a neuron helps to conduct a nerve impulse:
- Towards the cell body.
  - Away from the cell body.