CHAPTER – 7
CHEMICAL COORDINATION IN PLANTS

P. 93 Check Your Progress 1

A. Answer these questions.

1. Two types of Tropism – Geotropism and phototropism.
2. a. **Stimulus:** Any change in the environment to which an organism responds and reacts.
   b. **Phototropism:** The growth movement and orientation of a plant part in response to the light.
   c. **Geotropism:** The growth movement of plant part in response to gravitational force of the earth.
   d. **Hydrotropism:** The growth movement of plant parts towards water or moisture.
3. *Mimosa pudica*

P. 95 Check Your Progress 2

A. Answer these questions.

1. Auxin is a growth hormone and helps the cells to grow longer. It also promotes cell enlargement and cell differentiation.
2. Abscisic acid
3. c. Cytokinin

P. 96 Exercises

I. Multiple-Choice Questions

A. Choose the most appropriate answer.

1. b	2. a	3. b	4. c
5. d	6. d	7. c	8. b
9. c	10. b		

II. Assertion–Reason Type Questions

A. 1. d 2. a 3. a 4. c

III. Very Short Answer Type Questions

A. Name a plant hormone which

1. Cytokinin
2. ABA
3. Gibberellin
4. Ethylene
5. ABA
6. ABA
7. Auxin

B. Complete the following paragraph by filling in the blanks (1) to (5) with appropriate words.

1. touch
2. light
3. turgor
4. herbivores
5. nyctinasty

C. Choose the odd one in each of the following.

1. Adrenaline
2. Gibberellins

IV. Short Answer Type Questions

A. Answer these questions.

1. A growth response that results in the movement of plant part towards or away from stimuli is called tropism.

   There are five tropical movements found in plants – phototropism, geotropism, hydrotropism, chemotropism and thigmotropism.
2. The growth movement and orientation of a plant part in response to the light is called phototropism. Auxin is the plant hormone that controls phototropism.
3. The growth movement of a plant part due to chemical stimuli is called chemotropism. For example, pollen tube grows through the style towards ovules in response to certain chemical secretions from stigma.
4. When the tip of a tendril touches a support, the auxin present in it moves away from the support. Therefore, the side of tendril away from support grows longer and faster.
5. Phytohormones are organic compounds which are released by the plant cells or synthesized outside, that modify or control the growth or physiological process within a plant. They are also called plant growth regulators.
6. Shoot will show negative geotropism whereas root will show positive geotropism.
7. Thigmotropism is the property that causes tendril to circle around the object. When the supporting organ touches a support, it results in a coiling response to catch hold the object and lighten its hold. For example, the tendrils of a pea plant grow towards a support , touch it and wind around that support.

V. Long Answer Type Questions

A. Answer these questions.

1. Chemical coordination occurs in plants with the help of chemicals secreted in plants known as phytohormones or plant hormones. These chemicals are secreted in very minute quantity but have a substantial effect on physiological processes in a plant. These hormones regulate the growth of the plants. For example, auxin is responsible for the growth of the plants and cytokinin helps in cell division in the fast growing part of the plant such as plant hormones.

2. The growth movement of plant parts towards water or moisture is called hydrotropism. For example, the roots of plant growing in humid air bend towards a higher relative humidity level.

The growth movement of a plant part due to chemical stimuli is called chemotropism. For example, pollen tube grows through the style towards ovules in response to certain chemical secretions from stigma.

VI. Structured/ Application/ Skill Type Question

A. Complete the following table.

1. Promotes wilting of leaves

2. Cytokinin

3. Induces ripening of fruits

4. Abscisic acid

B. 1. i. Hypocotyl; **ii.** Epicotyl

2. Hydrotropism

3. Part i is affected by gravitational force and water. Water is more stronger stimulus in this case.

4. The growth movement of a plant part in response to the touch of an object is called thigmotropism. In some plants, when the plant organ touches a support, it results in a coiling response to catch hold the object and tighten its hold. For example, the tendrils of sweet pea plant grow towards a support, touch it and wind around that support.

5. Movement and growth of plant parts towards source of stimulus is called positive and away from source of stimulus is called negative tropic movement respectively.