

QUIZ: CONTROL AND CO-ORDINATION IN PLANTS

1. Movement stimulated by touch (Known as contact stimulus) is called
 - (a) Geotropism
 - (b) Thigmotropism
 - (c) Phototropism
 - (d) Chemotropism

2. The following hormone plays a role in thigmotropism
 - (a) Gibberellic acid
 - (b) Cytokinin
 - (c) Auxin
 - (d) Abscisic acid

3. An example for chemotropism is pollen tube growth. The chemical involved in this phenomenon is
 - (a) Zinc
 - (b) Mercury
 - (c) Carbon
 - (d) Calcium

4. Among the following tropic movements which one may be sometimes independent of growth .
 - (a) Phototropism
 - (b) Chemotropism
 - (c) Thigmotropism
 - (d) Geotropism

5. What is common to phototropism and Geotropism?
 - (a) Both can be observed in a single plant simultaneously.
 - (b) Both are directional movements and occur in the same direction.
 - (c) Both are triggered by environmental factors such as light.
 - (d) Both occur only in the laboratory and not in nature.

6. It is commonly observed in the kitchen that freshly harvested potatoes never sprout. Only the old potatoes (potatoes harvested in the last season) sprout profusely. The possible reason could be
- (a) Fresh potato tubers do not have adventitious buds.
 - (b) Fresh potato tubers contain large amount of water.
 - (c) Fresh potato tubers contain starch only.
 - (d) Fresh potato tubers are in dormant state and require time for ripening.
7. Motion or orientation of flowers of sunflower plant in response to direction of the sun is an example for
- (a) Thigmotropism
 - (b) Phototropism
 - (c) Heliotropism
 - (d) Hydrotropism

Answers:

1. (b)

Explanation: The term Thigmotropism refers to movement stimulated by touch. Geotropism, Phototropism, Chemotropism refers to movement stimulated by gravitational force, light and chemical respectively.

2. (c)

Explanation: In the climbers in response to contact stimulus the cells produce auxin. Auxin promotes cell elongation. The cells grow faster. This will result in the plant coiling around the contact surface. For example in the pea plant the tendrils are sensitive to touch. When a tendril comes in contact with any support, the part (cells) of the tendril in contact with the object does not grow as rapidly as the part of the tendril away from the object. This cause the tendril to circle around the object and cling to it.

3. (d)

Explanation: Calcium promotes chemotropic growth of pollen tube towards the egg apparatus present in the ovule.

4. (c)

Explanation: There is no growth involved in thigmotropic movement shown by touch me not plant (*Mimosa pudica*, also known as the sensitive

plant). However, the thigmotropic movement by tendrils of pea plant is growth associated.

5. (c)

Explanation: Shoot is positively phototropic whereas root is negatively phototropic. In both growth is directional. Shoot move or bend towards light whereas root bend or move away from light.

6. (d)

Explanation: Abscisic acid hormone is a growth inhibitor. Its presence does not allow sprouting of tubers.

7. (b)

Explanation: Motion of plant parts in response to direction of sun is termed Heliotropism. Heliotropic flowers track Sun's motion across the sky. During the night the flowers show random orientation. However at dawn the flowers turn towards the east where the sun rises.