

QB365 Question Paper Software
11th Standard - Biology

Plant Growth and Development Assertion and reason

Exam Time: 00:20 Hrs

Date: 2025-10-10

Total Marks: 10

Questions:

Assertion and reason

1.**Assertion:** For the synthesis of protoplasm nutrients are required by plants which act as source of energy.

Reason: Water provides the medium for enzymatic activities needed for growth.

Codes:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.

2.**Assertion:** Both at the root apex and the shoot apex, the constantly dividing cells show the meristematic phase of growth.

Reason: The cells of this region are rich in protoplasm and lacks nuclei.

Codes:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.

3.**Assertion:** Secondary roots and shoots are plagiogeotropic.

Reason: Plagiogeotropic roots are those which develop at an angle of 45° from the vertical axis.

Codes:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.

4.**Assertion:** F.W. Went isolated auxin from the tips of coleoptiles of wheat seedlings.

Reason: Ethylene delays the senescence.

Codes:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.

5. **Assertion:** By suppressing the activity of lateral buds, auxins promote apical dominance.

Reason: In moriculture, periodic pruning of shoot tips is done to make mulberry plants bushy.

Codes:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.

6. **Assertion:** Primary growth of the plants leads to the elongation of the plants along their axis.

Reason: Root apical meristem and shoot apical meristem are responsible for primary growth of the plants.

Codes:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.

7. **Assertion :** Apical dominance is increased by removal of shoot tip.

Reason : Due to accumulation of auxin in lateral parts, growth is inhibited.

Codes:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.

8. **Assertion :** Gibberellins induce flowering in long day plants.

Reason : Genetically tall plant become dwarf by application of Gibberellin.

Codes:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.

9. **Assertion :** Stratification of seeds may promote their germination.

Reason : Stratification is promoted by gibberellin and cytokinins.

Codes:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

(c) If Assertion is true but Reason is false.

(d) If both Assertion and Reason are false.

10. **Assertion :** The pigment which causes photoperiodic stimulus is called phytochrome.

Reason : Chemically phytochrome is a starch.

Codes:

(a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

(c) If Assertion is true but Reason is false.

(d) If both Assertion and Reason are false.

Answers Key:

Assertion and reason

1. (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

Explanation:

Nutrients are raw materials required for synthesis of protoplasm as well as source of energy. It should be rich in nitrogenous components to increase the synthesis of protoplasm and carbohydrates for energy and cell wall synthesis. All types of micronutrients and macronutrients should be available for proper growth. Water is required for cell elongation, maintenance of turgidity of growing cells and for providing medium for enzyme action. Even slight deficiency of water reduces growth. It may, however, promote differentiation. Water stress completely stops growth.

2. (c) If Assertion is true but Reason is false.

Explanation:

The root apex, shoot apex and many other regions consists meristematic tissue. By mitotic divisions of the meristematic cells new cells are produced. These cells have cellulosic cells walls, contains large nucleus and rich in protoplasm. It is called the phase of cell formation or cell division.

3. (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

Explanation:

Secondary roots and shoots are plagiogeotropic i.e., they grow to a position at an oblique angle (45°) to the gravitational force. Root and stem branches lie at an angle other than 90° to the direction of gravity.

4. (d) If both Assertion and Reason are false.

Explanation:

F.W. Went isolated auxin from tips of coleoptiles of oat seedlings. Ethylene promotes senescence and abscission of plant organs especially of leaves and flowers.

5. (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

Explanation:

Auxin is produced by shoot tip that acts as a growth promoter for apical bud and inhibit the growth of lateral buds. When a terminal bud is removed, the nearest axillary buds begin to grow and the plant branches rapidly. In case of mulberry plants, pruning is

done to remove apical dominance and causes more branching of the main body of the plant.

6. (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

Explanation:

Growth is unique in plants because plants retain the capacity for unlimited growth throughout their life. These ability of the plants is due to the presence of meristems at certain locations in their body. The cells of such meristems have the ability to divide and self-perpetuate. The root apical meristem and shoot apical meristem are indeterminate meristems, because these meristems continue thier activity throughout life of the plant. Root apical meristem and shoot apical meristem cause primary growth of plants and also causes the elongation of the plants along their axis.

7. (d) If both Assertion and Reason are false.

Explanation:

Removal of shoot tip increases the lateral dominance not apical dominance. Accumulation of auxin in the lateral part elongates the cells and increases growth.

8. (c) If Assertion is true but Reason is false.

Explanation:

Application of GA can induce flowering in long day plants. It has no favourbale effect on size of flower and fruit in certain plants. The genetically dwarf plants can be made tall by application of GA.

9. (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

Explanation:

Stratification of seeds may affect the disappearance of inhibitors and the buildup of germination promoters such as the gibberellins and cytokinins. Natural stratification occurs when seeds shed in the fall are covered with cold soil, debris and snow. In artificial stratification, layers of seeds are alternated with layers of moistened Sphagnum sand or some other appropriate material and stored at low temperatures.

10. (c) If Assertion is true but Reason is false.

Explanation:

Phytochrome is a pigment involved in the perception of photoperiodic stimuli controlling flowering, seed germination and other morphogenetic phenomena. It is a protein with a chromophore (pigment-coloured portion) prosthetic group (e.g., Chromoprotein).