

**CBSE TEST PAPER-02**  
**CLASS - XI BIOLOGY**  
**(Plant Growth and Development)**

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**General Instruction:**

- All questions are compulsory.
  - Question No. 1 to 3 carry one marks each. Question No. 4 to 6 carry two marks each. Question No. 7 and 8 carry three marks each. Question No. 9 carry five marks.
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1. What is aleurone layer?
2. Name the growth regulator which was first isolated from corn kernel and coconut milk?
3. What is the full form of IAA?
4. 'Both growth and differentiation in higher plants are open' comment.
5. What is bolting? Which hormone is responsible for it?
6. Why is the term short plants a misnomer?
7. Differentiate between photoperiodism and vernalisation?
8. Discuss the statement : 'The growth is measurable'
9. i) What do you understand by the term Development?  
ii) Explain the sequence of development process in a plant cell.

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**[ANSWERS]**

Ans 01. It is special tissue layer which surrounds the endosperm in maize grain.

Ans02. Zeatin (Cytokinin) was first isolated from corn kernel and coconut milk.

Ans 03. Indole Acetic Acid.

Ans 04. Growth and differentiation in plants are open as all the cells as well as the tissues arising from the same meristem may possess different structures at maturity. The maturity is determined by the location of cells or tissues e.g. it may be at shoot apex, root apex. Cambium etc.

Ans 05. Enormous elongation of inter nodes resulting increase in stem height. Gibberellins cause the plants to bolt and flower.

Ans 06. These plants require a relatively short day light period usually 8-10 hours and a continuous dark period of about 14-16 hours for flowering. In short day plants dark period is critical and must be continuous. They are known as long Night plants and the term short day plant is a misnomer with long night plants.

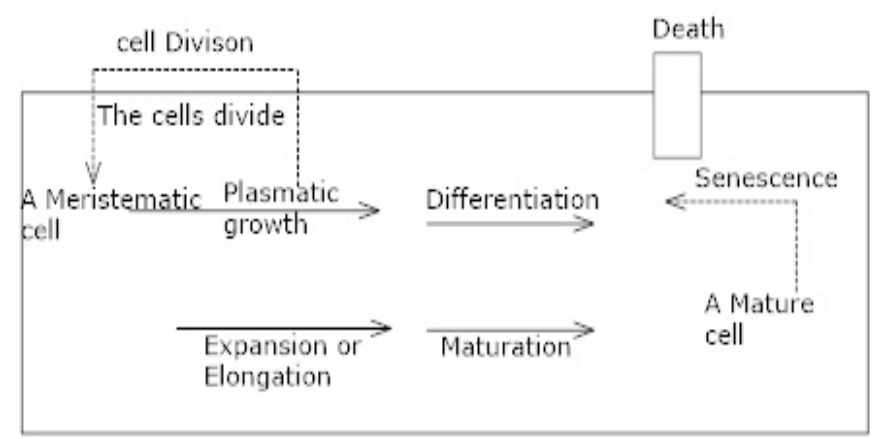
Ans 07.

|   | Photoperiodism  | Vernalization   |
|---|---|---|
| a | Photoperiodism is the flowering response of the plants to the duration of light and dark period in the diurnal cycle. | Vernalisation prepares the plants for perceiving stimulus for flower induction by chilling treatment. |
| b | In this stimulus perceived by green leaves only.  | Stimulus is perceived by young embryos, meristems and even leaves.                                    |
| c | In this florigen is produced under photoinductive conditions.   | Vernalin is produced by chilling treatment.   |
| d | Photoperiodic induction cannot be reversed by exposing to non-inductive conditions.                                   | Vernalisation can be reversed when maintained higher temperature                                      |
|   | GA3 has the capability to replace the   | GA3 can replace cold treatment to   |

|   |   |                       |
|---|---|-----------------------|
| e | requirements of photo-inductive conditions in long day plants only. | induce vernalisation. |
|---|---|-----------------------|

Ans 08. The growth (at a cellular level) is basically a consequence of increase in the amount of protoplasm. Since we cannot measure growth directly it is measured by some quantity that is more or less proportional to it so the growth is measured by a variety of parameters like increase in fresh weight; dry weight; length; area; volume and cell number etc. One single maize root apical meristem may give rise to more than 17,500 new cells per hour. The cells in a watermelon can increase in size by upto 3,50,000 times. Therefore, growth may be expressed as increase in cell number or as increase in size of cell. The growth of a pollen tube is measured in terms of length. An increase in surface area measures growth in a dorsiventral leaf or dicot leaf.

Ans 09. It is a term “that includes all changes that an organism goes through during its life cycle from germination of the seed to senescence.” Diagrammatic representation of the sequence of processes in development of a cell of a higher plant.



Sequence of the development process in a plant cell.