
CBSE TEST PAPER-03
CLASS - XI BIOLOGY
(Plant Growth and Development)

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.
-

1. Name the hormone which is responsible for elongation of internodal regions of green plants.
2. Would a defoliated plant respond to photoperiodic cycle? Why?
3. Mention the names of two such chemicals/hormones that cause seed dormancy? How these chemicals cause dormancy of seeds?
4. Explain the role played by phytochrome in seed germination.
5. What is 'Bioassay'?
6. Name any two synthetic auxins. How are they used in agriculture?
7. What is apical dominance? Name the hormone that controls it.
8. Write the principal characteristics of PGR's.
9. How is growth measured in plants?

CBSE TEST PAPER-03
CLASS - XI BIOLOGY
(Plant Growth and Development)
[ANSWERS]

Ans 01. Gibberellic Acid is responsible for elongation of internodes in green plants.

Ans 02. No, a defoliated plant cannot respond to the photoperiodic cycle. The reason for this is, leaves are the site of perception. In the absence of leaves, perception will not occur. Hormonal substance responsible for flowering is formed in the leaves which is then

migrated to the shoot apices. Therefore in absence of leaves, no hormone formation will be there, hence no photoperiodic cycle.

Ans 03. Abscissic acid and phenolic acid

.

Ans 04. Phytochrome is a regulatory pigment which controls several light dependent developmental processes in plants besides seed germination. Phytochromes exist in two inter convertible forms :

- P_r and P_{fr} . On absorbing red light P_r becomes P_{fr} .
- P_{fr} becomes P_r either rapidly by absorbing far red light or slowly in darkness.
- Germination is promoted by P_{fr} and red light is needed to promote this. Darkness (far-red) promotes P_r formation which induces dormancy and inhibits germination.

Ans 05. Bioassay is the evaluation of the concentration or effect of a substance on living organism under controlled conditions.

Ans 06. Two synthetic auxins are

(i) 1-naphthaleneacetic acid (NAA)

(ii) 2,4- dichlorophenoxyacetic acid (2,4-D)

Auxins are employed in agriculture to induce rooting, parthenocarpy, flowering and as weedicides (2, 4-D).

Ans 07. "The inhibition of growth of lateral buds into the branches in the presence of an apical bud."

Apical dominance is under the control of auxins IAA (indole acetic acid) is the principal auxin found in all the plants. Lateral buds start their development when apical bud is removed. The process is again reversed if you apply IAA to decapitate apex of plant.

Ans 08. Characteristics – PGRs are small, simple molecules of diverse chemical structure occurring in plants. They are indole compounds (indole 3 acetic acid, IAA); adenine derivatives CN^6 of (arotenoids) and the fatty acids (abscissic acid, ABA); terpenes (gibberillic acid, GA_3) or gases (ethylene, C_2H_4). PGR's are called plant growth substances or plant hormones.

They are broadly divided into two groups based on their function in a living plant body:-

a) On group of PGR's involved in growth promoting activities, e.g, cell division, cell enlargement, pattern formation, tropic growth, flowering, fruiting and seed formation. They also termed plant growth promoter e.g. auxons, gibberellins, cytokinins.

b) PGR's of other group are in plant responses to wounds and stresses of biotic and abiotic origin. These may be involved in different growth inhibiting activities like dormancy and abscission; e.g, abscissic acid (ABA). The gaseous PGR is ethylene. It is inhibitor of growth activities mostly.

Ans 09. Growth in plants is measured by an indicator called Arc auxanometer. Pfeffer's auxanometer have two wheels attached to a stem. The lip of the potted plant is connected to small pulley and its other end is strengthened to a weight. A pointer is attached to a big pulley by weight and also to a cylinder having smoothed paper.

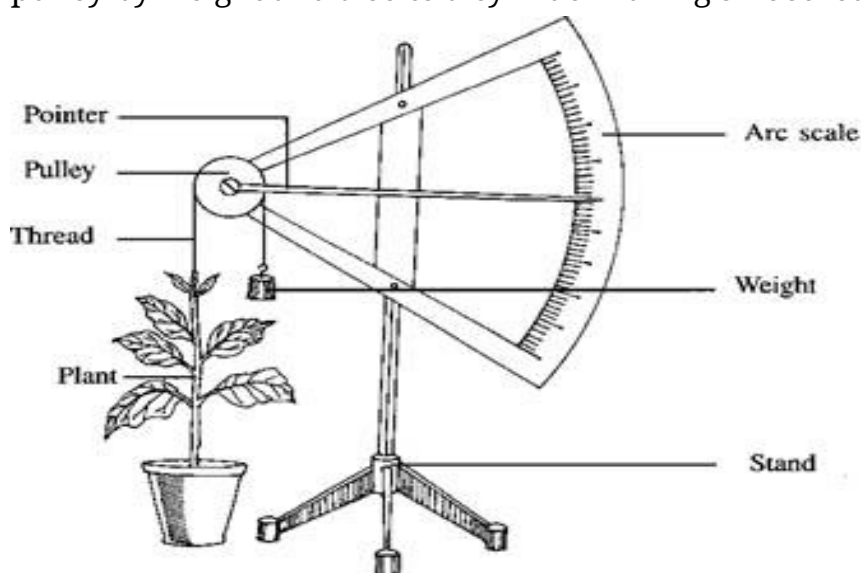


Fig. 2.16 Lever Auxanometer