

Short Answer Type Questions-I

Q.1. Write the principle characteristics of PGR.

Ans. Characteristics of Plant Growth Regulators (PGRs):

- (i) PGRs are small, simple molecules of diverse chemical structure occurring in plants.
- (ii) They are indole compounds (indole-3- acetic acid, IAA) adenine derivatives N⁶ -furfurylamino purine, kinetin, the derivatives of carotenoids and the fatty acids (abscisic acid, ABA); terpenes (gibberellic acid, GA₃) or gases (ethylene, C₂H₄).

Q. 2. Give some functions each of gibberellin and cytokinin.

Ans. (i) Functions of Gibberellin:

- (a) Stimulates stem elongation and leaf expansions.
- (b) Breaks seed dormancy.

(ii) Functions of Cytokinin:

- (a) Stimulates cell division.
- (b) Help overcome apical dominance.

Q. 3. What are the uses of ethylene ?

Ans. Ethylene is used in following ways:

- (i) Ethephon hastens fruit ripening in tomatoes and apples.
- (ii) Increase in number of fruits.
- (iii) Sprouting of storage organs such as rhizomes, corms, tubers can be enhanced by exposing them to ethylene.
- (iv) Ethylene accelerates abscission in flowers and fruits and is used for thinning of fruits like cotton, cherry etc.

Q. 4. Name one synthetic auxin that can be used as a herbicide. Give one more application of the same.

Ans. 2, 4- dichlorophenoxy acetic acid (2, 4-D) is a dicotyledonous weed killer. 2, 4-D is used to kill broad leaved weeds.

It is used to induce flowering in pineapple and litchi.

Q. 5. Write the full form of two synthetic auxins NAA and IBA. What for are these used ?

Ans. Full forms of two synthetic auxins:

NAA: Naphthalene Acetic Acid

IBA: Indole Butyric Acid.

They are used in agriculture to induce rooting in mango, flowering in cotton plants, to break dormancy of seeds and to prevent the sprouting of potato tubers etc.

Q. 6. For how long period will seeds remain viable?

Ans. (i) A seeds remain viable or living only for a particular period.

(ii) Viability may range from few weeks to over one hundred years. *e.g., Trifolium and Oxalis*. Lotus seeds have the maximum viability of about 1000 years. Seeds germinate only within the period of their viability

Q. 7. Explain the counter action of cytokinin on apical dominance.

Ans. (i) Auxins and cytokinins act antagonistically in relation to apical dominance.

(ii) The auxins allow dominance of apical bud while cytokinins stimulate the growth of lateral buds.

(iii) Application of cytokinins to lateral buds relieves them from apical inhibition.

(iv) In the presence of cytokinins, supply of water and minerals increases to these buds, and therefore, the lateral buds grow even in the presence of apical bud.