

Topic :- Plant Growth & Development

- 1 (c)
Firstly, the ABA was discovered and named dormin because this hormone induce dormancy in seeds. Hence, it is also called dormancy hormone
- 2 (d)
Plant growth regulators are also called plant hormone, plant growth substance and phytohormone
- 3 (c)
Ethylene is a simple, gaseous hydrocarbon and is a naturally occurring plant hormone. It acts for fruit development and ripening, controls leaves and flower abscission.
- 4 (c)
Exponential or log phase can not sustain for long period because the nutrients and space are limited and there is competition as well. Microorganisms, when nutrients get exhausted, secrete toxic chemicals which inhibit the growth of other organisms
- 5 (c)
Apoptosis is an active process of programmed cell death characterized by cleavage of chromosomal DNA, chromatin condensation and fragmentation of both the nucleus and the cell.
- 6 (c)
Abscisic acid (ABA) is produced in many parts of the green plants. It is formed from mevalonic acid.
- 7 (c)
A – different, B – plasticity.
Plant follows different pathways in response to environment or phases of life to form different kind of structures. This ability is called plasticity, *e.g.*, heterophylly in cotton, coriander and larkspur
- 8 (d)
Opening of floral buds into flower is a type of autonomic movement of growth (nastic movement). This is non-directional movement in which the response is determined by the responsive organ and not to the direction of stimulus. Greater growth on one side causes the organ to bend to the opposite side.
- 9 (a)

A bioassay is the measurement of the effect of a known or suspected biologically active substance on living material. **Went** used *Avena sativa* (oat) coleoptiles in a technique called the *Avena* coleoptile curvature test for auxin.

10 **(a)**
Growth is invariably associated with differentiation. For example, when a seed germinates it does not simply increase in size but forms seedlings. Differentiation is a permanent, localised qualitative change in size, biochemistry, structure and function of cells, tissues or organs, *e.g.*, fibres, vessels, tracheids, sieve tubes, mesophyll, leaf, etc.

11 **(a)**
Vernalization is chilling or cold treatment of the young plants or seeds to induce flowering. It is a process of shortening of the juvenile or vegetative phase and hastening the flowering by a process of cold treatment. It was first reported by a Russian worker, **Lysenko** (1928) while working in cold requiring biennial plants. Common examples of plants requiring vernalization are winter rye, winter wheat, winter barley, pea, *Chrysanthemum*, etc.

12 **(b)**
Seismonastic movements are due to the touch, shock, rain, electric currents etc. The best example of a seismonastic movement is the leaves of the sensitive plant *Mimosa pudica* (touch me not plant), the movement is produced due to turgor changes in the cells of the pulvinus or swollen area lying at the base of the petiole, pinnae and pinnules.

13 **(c)**
Open form of growth.
Plant growth is unique as they retain the capacity for unlimited growth which is mainly due to the presence of meristems. The cells of such meristems have the capacity to divide and self-perpetuate. This form of growth wherein new cells are always being added to the plant body by the activity of the meristem is called the open form of growth.

14 **(a)**
Day-neutral plants do not need a specific photoperiod to produce flowers. They are also called intermediates or photoneutrals. Their photoperiod varies from a few hours to 24 hours of uninterrupted light, *e.g.*, tomato, cucumber, sunflower, maize and cotton, etc.

15 **(b)**
Phototropism is the movement of a coleoptile (plant organ) towards the light (due to auxin). **Figure 1** shows incomplete blockage of auxin, but the direction of blockage does not favour the bending of the coleoptile towards the light source. **Figure 2** shows complete blockage of auxin movement from the apical part to the lateral part. So, no bending of the coleoptile is there. **Figure 3** shows incomplete blockage, but the direction favours the bending of the coleoptile towards the source. **Figure 4** shows no blockage hence, the bending of the coleoptile takes place easily.

16 **(d)**
Abscisic acid is a terpenoid, i.e., a derivative of a steroid. Indole-3-butyric acid and indole-3-

acetic acid are auxins, Which are weak organic acids. Gibberellic acid (gibberellin) is a terpene.

17

(b)

Growth plotted against time gives sigmoid curve. Its graph contains initial lag phase, middle log phase, final steady state phase.

18

(c)

Gibberellin promotes internodal elongation in a wide range of species. This internodal elongation phenomenon is known as blotting. Giberellin is a plant growth hormone, which was first obtained from a fungus *Gibberella fujikuroi* (*Fusarium moniliformi*).

19

(a)

Barley seeds are rich in carbohydrate (starch). The starch is hydrolysed by α -amylase to monosaccharides unit at the time of germination of seeds.

20

(c)

The final structure at maturity of a cell tissue is determined by the location of cells

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	C	D	C	C	C	C	C	D	A	A
Q.	11	12	13	14	15	16	17	18	19	20
A.	A	B	C	A	B	D	B	C	A	C