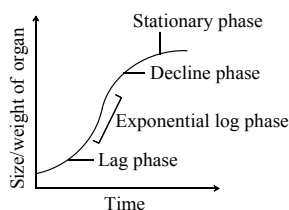


**Topic :- Plant Growth & Development**

- 1 **(a)**  
**Abscission** involves the fall of leaves and fruits. **Addicott** and his co-workers (1964) observed that abscisic acid (ABA), a stress hormone, accelerating leaf abscission in cotton plants. Since then, it is believed that cause of abscission is the presence of growth inhibiting hormone (ABA) but its universal role for abscission is yet to be established.
- 2 **(d)**  
Auxin, GA, ABA, cytokinin, all are acidic in nature
- 3 **(a)**  
**Phototropism** movement of plants towards the light is called phototropism. Charles Darwin and his son observed that the coleoptiles of canary grass respond to unilateral illumination by growing towards the light source (phototropism)
- 4 **(c)**  
GA<sub>3</sub>.  
More than 100 gibberellins, reported from widely different organisms such as fungi and higher plants. They are denoted as GA<sub>1</sub>, GA<sub>2</sub>, GA<sub>3</sub> and so on. however, GA<sub>3</sub> was one the gibberellic acid to be discovered first and mostly intensively studied form
- 5 **(b)**  
Formation of cork cambium and interfascicular cambium is the example of dedifferentiation
- 6 **(d)**  
(i) 2-4-D is an auxin, which is widely used as weedicide for dicotyledonous weeds.  
(ii) Ethylene causes fruit ripening
- 7 **(a)**  
Auxins is a growth promoting plant hormone. It influences the growth of apical buds (apical dominance) by inhibiting the growth of lateral buds. It is possible because the auxin is synthesized in the apical meristem from where it is translocated downwards causing inhibition of lateral buds.
- 8 **(a)**  
Apical dominance is a condition in plants where the stem apex prevents the development of side shoots from lateral buds near the apex. The dominance is controlled by the presence of high concentration of plant hormone auxin at the apex, produced by the apical bud.
- 9 **(c)**  
Permanent localised qualitative change in size, biochemistry, structure and function of cells or organs is called differentiation

- 10 **(d)**  
**Exponential phase** or **log phase** is characterized by rapid growth in population, which continues till enough food is available.
- 11 **(c)**  
 Contact or touch stimulus that induced growth movements are called 'thigmotropism'. E.g., binding of tendril, twisting of twinner around a solid support, stem of *Ciscuta*, root of *Vanilla*.
- 12 **(b)**  
 In most of the higher plants, the growing apical bud inhibits the growth of the lateral (axillary) buds. This phenomenon is called apical dominance. This phenomenon takes place due to the synthesis of auxins by apical buds
- 13 **(a)**  
 Heterophylly can be observed in cotton, coriander, and larkspur
- 14 **(d)**  
 Gibberellins causes fruit like apple to elongate and improve its shape. They also delay senescence
- 15 **(a)**  
 SDP are also called long night plant. Even a flash of light during their critical dark period can cause non-flowering of plants. Hence in the question, the plant category is SDP (Short Day Plant)
- 16 **(b)**  
 In the exponential growth, there is geometric increase of organism (cell, mass, etc.) because both the cell follows the mitosis. This type of growth can be seen in microorganism and embryo stage of animals and plants
- 17 **(c)**  
 Ethylene promotes root growth and root hair formation. Thus, they help the plants to increase its absorption surface by increasing the surface area
- 18 **(a)**  
 Absolute growth rate.  
**Geometrical Growth** In most system the initial growth is slow (lag phase), and it increases there after at a exponential rate (log or exponential phase). Both the progeny cells following mitotic cell division retains the ability to divide and continue to do so. However due to the limited nutrient supply, the growth slows down leading to stationary phase. If we plot the parameter of growth against time, a typical sigmoid curve is obtained.  
*It has following stages*
1. During lag phase, organism adapt themselves to growth conditions. It is the period where the individual organism are maturing and not yet able to divide. During the lag phase of the bacterial growth cycle, synthesis of RNA, enzymes and other molecules occurs
  2. The log phase (sometimes called the logarithmic phase or the exponential phase) is a period characterised by cell doubling. The number of new organism appering per unit time is proportional to the present population.
  3. The stationary phase is often due to a growth-limiting factor such as the depletion of an essential nutrient, and/or the formation of an inhibitory product such as an organic acid. Stationary phase results from a situation in which growth rate and death rate are equal
  4. Death phase, organism run out of nutrients and die



19 (d)

**Gibberellins** are growth hormones having gibbane ring structure, which causes cell elongation of intact plants. Thus, gibberellin promotes cell elongation in root, shoot and leaves of a plant.

20 (a)

Auxins (from greek *auxein*: to grow) were first isolated from human urine. The terms 'auxin' is applied to the indole-3-acetic and (IAA) and to other natural and synthetic compounds having certain growth regulating properties. They are generally produced by the growing apices of the stems and roots, from where they migrate to the regions of their action. Auxins, like IAA and Indole Butyric Acid (IBA) have been isolated from plants. NAA (naphthalene acetic acid) and 2, 4-D (2, 4-dichlorophenoxyacetic) are synthetic auxins. All these auxins have been used extensively in agriculture and horticultural practices

P

E

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