

**Topic :- Plant Growth & Development**

- 1 (a)  
Richmond and Lang (1967) observed that degradation of proteins and chlorophyll was delayed in the detached leaves of *Xanthium* by the application of cytokinin. This effect of cytokinin in delaying the senescence is called as Richmond-Lang effect.
- 2 (c)  
Nastic movements are determined by some external stimuli like light, temperature or contact, in which direction of response is prefixed. Flowers of tulips open during high temperatures and close down during low temperature, *i.e.*, **thermonastic movements**. The sunflower opens during the day and closes during night or cloudy sky, *i.e.*, **photonastic**.
- 3 (c)  
*Glycine max* is a short day plant.
- 4 (b)  
Gibberellin was first discovered from the fungus *Gibberella fujikuroi*.
- 5 (c)  
Winter varieties of wheat and barley are planted in autumn so that they can get stimulus of cold in winter and produce seed in spring season.
- 6 (d)  
The long day plants fail to flower, if the day length is shorter than the critical period, *e.g.*, sugarbeet, wheat, poppy, radish, maize, spinach, etc.
- 7 (b)  
**Nyctinastic** is found in members of Leguminosae such as *Albizia lebbek* and members of Oxalidaceae.
- 8 (b)  
Climacteric fruits have high respiration rate during the fruit's ripening. During the ripening process of climacteric fruits, the production of phytohormone, ethylene, dramatically increases up to 1000 folds of the basal ethylene level.
- 9 (d)  
Spraying juvenile conifers with GAs hastens the maturity period, thus leading to early seed production. Gibberellin also promotes bolting (internode elongation just prior to

- flowering) in beet, cabbages and many plants with rosette habit
- 10 **(b)**  
ABA plays an important role in seed development, maturation and dormancy. By inducing dormancy, ABA helps the seeds to withstand desiccation and other factors. As we can compare that most of ABA effects are opposite to G.A., thus, in most situation, the ABA is considered as antagonist to GA
- 11 **(a)**  
Auxin helps to initiate root production in stem cuttings. This property of auxin is used widely son in the propagation of new plants
- 12 **(c)**  
Ethylene is a ripening agent thus involved in the ripening of fruits.
- 13 **(c)**  
Growth Curve is the graphical representation of total growth against time
- 14 **(c)**  
Vernalization involves the cold treatment of plants to induce the flowering. Vernalization treatment of biennial plants for flowering can be replaced by gibberellins.
- 15 **(b)**  
Garner and Allard (1920) firstly observed photoperiod in 'Maryland' Mammoth'. A variety of tobacco could be made to flower in summers by reducing the amount of light hour along with artificial darkening. It could be made to remain vegetative in winters by proving extra light
- 16 **(d)**  
In most of the higher plants, the growing apical bud inhibits the growth of the lateral (axillary) buds, a phenomenon called apical dominance. Removal of shoot tips (decapitation) usually result in the growth of lateral buds. It is widely applied in tea plantation, hedge-making
- 17 **(d)**  
Phototropic movement is the result of uneven distribution of auxin.
- 18 **(c)**  
Ion movement into and out the guard cells during stomatal closure and opening depends on proton pumping of ATPase, which provides the proton gradients that are coupled to other secondary active transport mechanisms for  $K^+$  and  $Cl^-$ . The outward movement of protons is directly involves in expenditure of energy.
- 19 **(d)**  
Growth of the plant is open ended because plant grows indefinitely forming new organs to replace the older or senescent ones. Meristem is responsible for undermined growth of plants. Irreversible increase in the mass or volume is called opperent growth. Where as in real growth, formation of new plant protoplasm takes place
- 20 **(d)**  
**Ethylene** is a growth inhibitor, which is found in gaseous form and inhibits the growth of

pea plant.

<b>ANSWER-KEY</b>										
<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>C</b>	<b>C</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>B</b>	<b>B</b>	<b>D</b>	<b>B</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>A</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>B</b>	<b>D</b>	<b>D</b>	<b>C</b>	<b>D</b>	<b>D</b>

**PE**