

## DPP

DAILY PRACTICE PROBLEMS

Class : XI<sup>th</sup>

Date :

### Solutions

Subject : **BIOLOGY**

DPP No. : 2

## Topic :- Plant Growth & Development

- 1 (d)  
Darwin and his son were studying phototropism (growing plant toward light source) in canary grass. They deduced that the chemical produced in apical part of Canary grass is responsible for phototropism
- 2 (a)  
Low temperature required for vernalisation is usually 0°-5°C. Low temperature should not be immediately followed by very high temperature (40°C) otherwise the effect of vernalisation is lost. This phenomenon is called de vernalisation
- 3 (b)  
**Meristematic Phase** This phase is also called the formative or cell formation phase. In this phase there are constantly dividing cells present at the root and shoot apex. The cells in this region are rich in protoplasm, possess large conspicuous nuclei and the cell walls are, thin and cellulosic with abundant plasmodesmatal connections
- 4 (c)  
A – apical, B – lateral, C – lateral
- 5 (c)  
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
- 6 (c)  
Abscisic acid (ABA) or stress hormone or dormin is present in all vascular plants as well as in some mosses, some green algae and some fungi. They completely absent in bacteria. This is commonly formed inside chloroplast either from mevalonic acid or xanthophyll like violaxanthin. Chloroplasts in leaves contain the carotenoids from which ABA arises, whereas in certain other parts like roots, fruits, seeds, etc, necessary carotenoids are in chromoplasts, leucoplasts or proplastids.
- 7 (a)  
**Roots** seem to be the major source of cytokinin synthesis. From roots, the cytokinins pass upwardly through xylem.
- 8 (b)  
Cytokinin encounter the apical dominance by promoting the cell division in lateral shoots. It is also used to increase the growth of lateral buds in short plants
- 9 (d)  
The term 'auxin' is applied to the indole-3 acetic acid and to other natural and synthetic compound having certain growth regulating properties
 

Auxin

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graph TD
    Auxin --> Natural
    Auxin --> Synthetic
          
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Natural                      Synthetic

1. IAA (Indole Acetic Acid)    NAA (Naphthalene Acetic Acid)

2. IBA (Indole Butyric Acid)    2-4-D (2-4-Dichlorophenoxy Acetic Acid)
- 10 (b)  
The **ABA** inhibits giberellin-induced growth activities. On account of this antagonistic behaviour, it is often called anti-gibberellin.



- 11 (a) IAA (auxin) is responsible for apical growth (apical dominance) in which presence of apical bud does not allow the nearby lateral buds to grow.
- 12 (d) Increase in the girth of plants (organ) takes place by vascular and cork cambium.  
**Root Apical Meristem** (RAM), Shoot Apical Meristem (SAM) and intercalary meristem are responsible for the primary growth to the plants and they principally contributes to the elongation of the plants along their axis.  
 In the dicotyledons and gymnosperms, the lateral meristems, vascular cambium and cork cambium appear later in life. These are the meristems that causes increase in the girth of the organ in which they are active. This is known as the secondary growth of the plant
- 13 (b) The effect of photoperiod on plants is called photoperiodism. The photoperiod was first studied by Garner and Allard (1920)
- 14 (c) Lysenko
- 15 (c) During seed germination especially of cereals, gibberellin stimulates the production of hydrolytic enzymes like amylases, proteases and lipases. These enzymes solubilize the reserve food of seed.
- 16 (b) When long day plants are grown under short day conditions, the gibberellins are produced in insufficient quantities and flowering does not occur. However, if the plant is transferred to long day conditions, or gibberellin solution is applied to leaves, flowering occurs.
- 17 (a) The term vernalization was introduced by **Lysenko**. **Chourad** defined it is as acquisition of the ability to produce flowers by low temperature treatment. Vernalization is affected by two factor water and oxygen. In absence of proper water and  $O_2$  contents, the chilling treatment becomes ineffective.
- 18 (d) Development cannot take place without growth, and growth takes place by differentiation, dedifferentiation and redifferentiation. Hence, through these processes development takes place
- 19 (c) Gibberellins were named after the fungus *Gibberella fujikuroi* which causes disease in rice plants. A Japanese plant pathologist, Elichi Kurosawa investigated it as the bakane (foolish seedling) disease
- 20 (d) The conditions show that the plant requires photoperiod shorter than the critical day length. This plant needs uninterrupted dark period for flowering. Therefore, it is a short day plant and these plants do not flower if the dark period is interrupted with flashes of light.

### ANSWER-KEY

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



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