DPP
DAILY PRACTICE PROBLEMS

Class : XIth
Date :

Solutions

Subject : BIOLOGY
DPP No. : 1

Topic :- Transport in Plants

1 **(b)**
Xylem sap is composed of minerals and water and is not driven by higher concentration of sugars, while rapid flow of water does not affect the conducting tissue and only the rate of transpiration is increased

2 **(a)**
The most significant physiological feature of stomata is their **response to light**. Generally stomata open in the day time, i.e., light and close at night or in darkness. These are called as **photoactive** stomata. However, in succulent plants like Kalanchoe of family-Crassulaceae, the stomata open at night and close in the day time. Such stomata are called **scotoactive** stomata.

3 **(d)**
The direction of movement in phloem is bidirectional and that of xylem is unidirectional. Since the source-sink relationship is variable, the direction of movement in the phloem can be upwards or downwards, *i.e.,* bidirectional. This contrast with that of the xylem, where the movement is always unidirectional, *i.e.,* upwards

4 **(a)**
Pulsation theory for ascent of sap was proposed by an eminent Indian scientist **J C Bose**.

5 **(a)**
The water potential is the chemical potential of water in a system or part of a system expressed in units of pressure and chemical potential of pure water at same atmospheric pressure and temperature.

6 **(c)**
The solution whose osmotic concentration (solute potential) is equal to that of another solution is called **isotonic solution**.

7 **(c)**
Plants obtain most of their carbon and oxygen from CO_2 present in the atmosphere

8 **(a)**
When plant cell is kept in saline water, exosmosis takes place, as a result of which cell **decreases in size**.

9 **(a)**
When carrier proteins allow two type of molecular movements together, it is termed as co-transport. It can be further divided into two types; symport and antiport. In symport process, two types of material are diffused in same direction

10 **(b)**
In 1980, **Julius von Sachs**, a German botanist, demonstrated for the first time that plants could be grown to maturity in a defined nutrient solution in complete absence of soil. This technique of growing plants in a nutrient solution is known as **hydroponics**. These methods require purified water and mineral nutrient salts.

11 **(c)**
It is because of the close packing of water molecules in the inter spaces and over the surface of the

imbibant particles

12 **(a)**

In rooted plants, transport of inorganic substances like water and minerals occur by xylem and it is unidirectional in case of water

13 **(a)**

Guttation is loss of water in liquid form from uninjured part in plants. This water loss occurs through hydathodes or water stomata. Guttation usually occurs from tips and margins of leaves during early morning when there is high atmospheric humidity as during wet reasons. Water stomata or hydathodes are permanently opened pores.

14 **(c)**

Imbibition is a special type of diffusion when water is absorbed by solids colloids causing them to enormously increase in volume. The classical examples of imbibitions are absorption of water by seeds and dry wood.

15 **(a)**

A-Final level B-Dotpin
C-Initial level D-Sugar solution
E-Potato tuber

16 **(b)**

Transport of water and mineral in xylem is unidirectional and sap move upwards due to transpirational pull. While transport in phloem is bidirectional and multidirectional, transport of organic food by phloem takes place from the source to sink

17 **(b)**

The rate of transpiration can be reduced by using anti-transpirants. These can be used in two ways

1. Metabolic inhibitors: PMA, ABA, aspirin

2. Film forming antitranspirant: Silicon, low viscosity, waxes.

BAP (Benzyl amino purine) is a cytokinin.

18 **(d)**

Statoliths are microscopic particles. According to statolith theory given by **Haberlandt** and **Nemec** (1900), the change in position of statoliths under the influence of gravitation causes differential growth.

19 **(c)**

In a plasmolysed cell, the space between nucleus and plasma membrane is occupied by isotonic solution.

20 **(a)**

Sugarcane (*saccharum officinarum*) is a monocot plant of family-Poaceae. In gases (Poaceae), the guard cells are dumb bell-shaped and their cell walls are thickened only in the middle.

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