DPP
DAILY PRACTICE PROBLEMS

Class : XIth
Date :

Solutions

Subject : BIOLOGY
DPP No. : 2

Topic :- Mineral Nutrition

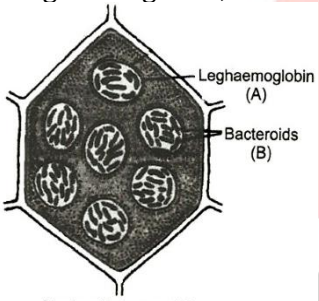
1 **(b)**
Hydroponics technique is useful in areas having infertile and dry soils and can regulate pH optimum for a particular crop

2 **(c)**
Phosphorus is absorbed by the plants from soil in the form of phosphate ions either as $H_2PO_4^-$ or HPO_4^{2-}

3 **(b)**
Insectivorous plants are autotrophic in their mode of nutrition but they grow in marshy or muddy soils, which are generally deficient in **nitrogen** and in other to fulfil their nitrogen requirements, these plants catch and digest small insects.

4 **(c)**
Aeroponics are soilless cultivated of plants

5 **(c)**
A-leghaemoglobin, B-bacteroids



Bacteroids in a nodule

6 **(b)**
Insectivorous plants eats insects for nitrogen

7 **(a)**
Enzyme nitrogenase is required for biological nitrogen fixation. It is a metal protein. The metal present in nitrogenase enzyme is molybdenum. Hence, molybdenum is an important element for nitrogen fixation.

8 **(c)**
The legumes (papilionacous plants) are itself incapable of nitrogen fixation. The *Rhizobium* bacteria are present symbiotically in the root nodules of these plants which have the capability of nitrogen fixation.

9 **(c)**
Coco air, perlite, rock cool, gravel all are used as media for hydroponics

10 **(b)**
In the centre of each chlorophyll molecule is found a magnesium metal.

11 **(d)**
Essential elements can be grouped into four broad categories on the basis of their diverse functions.

(i) Essential elements that acts as a components of biomolecules and hence, structural elements of cells (*e. g.*, carbon, hydrogen, oxygen and nitrogen)
(ii) Essential elements that are components of energy-related chemical compounds in plants
(iii) Essential elements that activates or inhibits enzymes
(iv) Some essential elements can alter the osmotic potential of a cell

12 **(d)**
Potassium is absorbed as K^+ ions. In plants, this is required in more abundant quantities in the meristematic tissues, buds, leaves and root lips

13 **(b)**
The root nodules in leguminous plants are pinkish due to presence of pigment leghaemoglobin. The cells of root nodules contain irregular polyhedral bacteria called bacteroids. Leghaemoglobin is located between bacteroids and surrounding host membrane. Leghaemoglobin is an oxygen scavenger and protect the nitrogen fixing enzyme nitrogenase.

14 **(c)**
The number of essential elements known for the growth and reproduction of plants is 17

15 **(b)**
Magnesium activates the enzymes of respiration, photosynthesis and is involved in the synthesis of DNA and RNA. Manganese activates many enzymes involved in photosynthesis, respiration and nitrogen metabolism.

16 **(b)**
Etiolation is the symptom developed in plants when grown in the dark. Examples include pale yellow or white colour due to lack of chlorophyll, long internodes, small and rudimentary leaves, poor development of lignificant tissue.

17 **(a)**
Crop rotation is the growing of alternate crops in the successive seasons on the same field. Crop rotation increases the soil fertility because different crops have different nutritional requirements.

18 **(a)**
The enzyme responsible for nitrogen fixation is known as **nitrogenase**. Nitrogenase enzyme complex consists of two components, i.e., Fe-protein and Mo-Fe protein. The subunits of Fe-protein contain iron-sulphur cluster (4 Fe and 4S) that participates in the redox reactions involved in the conversion of nitrogen to ammonia.

19 **(b)**
Soil is able to maintain a regular supply of minerals by the help of slow vegetation

20 **(c)**
Nitrate present in the soil is reduced to nitrogen by the process of denitrification. Denitrification is carried by bacteria *Pseudomonas* and *Thiobacillus*.
A number of cyanobacteria such as *Anabaena* and *Nostoc* are free-living nitrogen-fixers. *Azotobacter* and *Beijernickia* are free-living nitrogen fixing aerobic microbes. *Nitrosomonas* and/or *Nitrosococcus* oxidise NH_3 to nitrite.
The nitrite is further oxidised to nitrate with the help of *Nitrobacter* and *Nitrocystis.*

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