NEET 2015

1. During biological nitrogen fixation, inactivation of nitrogenase by oxygen poisoning is prevented by
2. Leghaemoglobin
3. Xanthophylls
4. Carotene
5. Cytochrome

Answer- a. Leghemoglobin

Leg- haemoglobin is a pink coloured pigment which is vital for biological nitrogen fixation. This pigment acts as an oxygen scavenger which creates a favorable anaerobic environment for the proper functioning of Nitrogenase enzyme which actually fixes the atmospheric nitrogen by converting it to ammonia.

[Refer page 203; Section 12.6.2]

1. Minerals known to be required in large amounts for plant growth include
2. Phosphorus, potassium, sulphur, calcium
3. Calcium, magnesium, manganese, copper
4. Potassium, phosphorus, selenium, boron
5. Magnesium, sulphur, iron, zinc

Answer- a. Phosphorus, potassium, sulphur, calcium

|  |  |
| --- | --- |
| Macronutrients | Micronutrients |
| Carbon | Iron |
| Hydrogen | Manganese |
| Oxygen | Copper |
| Nitrogen | Molybdenum |
| Phosphorous | Zinc |
| Sulphur | Boron |
| Potassium | Chlorine |
| Calcium | Nickel |
| Magnesium |  |

Refer page 196; Section 12.2.1 [NCERT 2021-22]

AIPMT 2014

1. Deficiency symptoms of nitrogen and potassium are visible first in:
2. Senescent leaves
3. Young leaves
4. Roots
5. Buds

Answer- a. Senescent leaves

Mobility of an element determines whether its deficiency would affect the younger leaves and parts of the plant or the older leaves and more mature parts. The deficiency in mobile elements tend to cause deficiency in older leaves first, as opposed to deficiency in immobile elements which cause deficiency in younger leaves first.

|  |  |
| --- | --- |
| Mobile elements: | Immobile elements: |
| Nitrogen | Calcium |
| Potassium | Copper |
| Chlorine | Sulphur |
| Phosphorous | Iron |
| Sodium  | Boron |
| Zinc |  |
| Magnesium |  |
| Molybdenum |  |

Refer page 198-199; Section 12.2.3 [NCERT 2021-22]

AIPMT 2013

1. The first stable product of fixation of atmospheric nitrogen in leguminous plants is:
2. Ammonia
3. Nitrite
4. Glutamate
5. NO2-

Answer- a. Ammonia

Nitrogenase enzyme catalyses the conversion of atmospheric nitrogen to ammonia which is the first stable product of nitrogen fixation.

Refer page 202; Section 12.6.2 [NCERT 2021-22]

1. The most abundant intracellular cation is:
2. Ca2+
3. H+
4. K+
5. Na+

Answer- c. K+

AIPMT 2012

1. Which one of the following is the wrong statement?
2. Anabaena and Nostoc are capable of fixing nitrogen in free-living statealso
3. Root nodule forming nitrogen fixers live as aerobes under free living conditions
4. Phosphorus is a constituents of cell membranes, certain nucleic acids and all proteins
5. Nitrosomonas and Nitrobacter are chemoautotrophs

Answer- c. Phosphorus is a constituents of cell membranes, certain nucleic acids and all proteins

Phosphorus is a constituent of cell membranes, certain proteins, all nucleic acids and nucleotides, and is required for all phosphorylation reactions.

Refer page 197; Section 12.2.2 [NCERT 2021-22]

1. Best defined function of manganese in green plants is:
2. Photolysis of water
3. Calvin cycle
4. Nitrogen fixation
5. Water absorption

Answer- a. Photolysis of water

The best defined function of manganese is in the splitting of water to liberate oxygen during photosynthesis.

Refer page 198; Section 12.2.2 [NCERT 2021-22]

AIPMT 2011

1. Nitrifying bacteria:
2. Convert free nitrogen to nitrogen compounds
3. Convert proteins into ammonia
4. Reduce nitrates to free nitrogen
5. Oxidize ammonia to nitrates

Answer- a. Oxidize ammonia to nitrates

Refer page 201; Section 12.6.1 [NCERT 2021-22]

1. The function of leghaemoglobin in the root nodules of legumes is:
2. Oxygen removal
3. Nodule differentiation
4. Expression of nif gene
5. Inhibition of nitrogenase activity

Answer- a. Oxygen removal

Leghaemoglobin is an oxygen scavenger which creates a favorable anaerobic environment for the proper functioning of Nitrogenase enzyme.

Refer page 203; Section 12.6.2 [NCERT 2021-22]