



# PARISHRAMA NEET ACADEMY

## TARGET NEET - 2022

### BIOLOGY

#### TOPIC: MINERAL NUTRITION

1. (2)

Iron is essential for the formation of chlorophyll. Zinc is needed for synthesis of auxin. Boron plays a role in pollen grain germination. Manganese is involved in the splitting of water to liberate  $O_2$  during photosynthesis.

Iron (Fe) deficiency is a plant disorder also known as “lime-induced chlorosis”. Zinc deficiency occurs when plant growth is limited because the plant cannot take up sufficient quantities of this essential micronutrient from its growing medium. Boron deficiency are expressed at growing tips of the root or shoot, and generally include stunting and distortion of the growing tip that can lead to tip death., brittle foliage, and yellowing of lower leaf tips. Manganese deficiency causes yellowing of leaves and undergoes interveinal chlorosis.

2. (1)

Iron is absorbed by plants in the form of ferric ions.

Plants uptake iron in its oxidized forms,  $Fe^{2+}$  (ferrous form) or  $Fe^{3+}$  (ferric form). Another mechanism involves the release of protons ( $H^+$ ) and reductants by the

plant roots, to lower pH levels in root zone. Iron is considered a micro-nutrient because only small amounts are required to aid in normal plant growth. Plants can suffer iron deficiency with symptoms of chlorosis and stunted growth, but plants can also take in too much iron, especially under certain growing conditions.

3. (4)

Plants require potassium ions ( $K^+$ ) for protein synthesis and for the opening and closing of stomata, which is regulated by proton pumps of make surrounding guard cells either turgid or flaccid.

4. (4)

Nitrogen, phosphorus, potassium, calcium, sulphur and magnesium are the macronutrients.

The essential elements can be divided into macronutrients and micronutrients. Nutrients that plants require in larger amounts are called macronutrients. About half of the essential elements are considered macronutrients: carbon, hydrogen, oxygen, nitrogen, phosphorus, potassium, calcium, magnesium and sulphur.

Macronutrients are essential for plant growth and a good overall state of the plant. The primary macronutrients are Nitrogen (N), Phosphorous (P) and Potassium (K). Nitrogen is essential for plant development, since it plays a fundamental role in energy metabolism and protein synthesis.

5. (4)

Phosphorus, potassium, sulphur and calcium play an important role in plants growth. These minerals are required in large amount. Phosphorus is required for all phosphorylation reactions and constitution of cell membrane nucleic acids and some proteins. Potassium is related with protein synthesis, closing and opening of stomata and activation of enzyme. Calcium regulates metabolic activities function of cell membrane and stabilizes the structure of chromosomes. Sulphur is the main constituent of the amino acids, cystine and methionine, coenzymes and vitamins.

6. (1)

Biotin, also known as vitamin H, is water-soluble B-vitamin. It is coenzymes for carboxylase enzymes, involved in the synthesis of fatty acids, isoleucine, valine and in gluconeogenesis. Sulphur is a constituent of biotin.

7. (1)

The best define function of manganese is in the splitting of water of liberate oxygen during photosynthesis. It is absorbed in the form of manganese ions ( $Mn^{2+}$ ). It activates many enzymes involved in photosynthesis, respiration and nitrogen metabolism.

8. (3)

Potassium immobilization is the conversion of water soluble potassium into water insoluble form. Readily available potassium constitutes about 1% of total potassium available in soil, whereas slightly soluble potassium accounts for about 98%.

9. (1)

Carboxypeptidase is an exopeptidase enzyme secreted by the pancreases that acts only on the peptide linkage of a terminal amino acid containing a free carboxyl group. Zinc is a cofactor for carboxypeptidase. In digestion of carboxypeptidase, requires zinc for its protein degrading action.

10. (2)

Calcium is not remobilized from the leaves to the fruits, like potassium, phosphorus and sulphur. It occurs abundantly in a non-exchangeable form such as anorthite ( $CaAl_2Si_2O_8$ ).