BIOLOGY

BOOKS - KUMAR PRAKASHAN KENDRA

BIOLOGY (GUJRATI ENGLISH)

MINERAL NUTRITION

Section A Exam Oriented Questions Answer From Darpan

1. Write the need of macromolecules.

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2. Which maters can be studied in mineral nutrition?

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3. Mention the methods to study the mineral requirements in plants.

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4. Give information about essential mineral elements for plants and Give criteria for essentially.

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5. Explain type of mineral elements with examples.

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6. Describe essential minerals on the basis of their diverse functions.

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7. Clarify the role of essential mineral elements (Role of macro and Micro nutrients).

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8. Mention various forms and functions of essential mineral nutrients.

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9. Deficiency symptoms of Essential Elements.

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10. Name the deficiency shown by plants and their causative elements.

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11. Write effects of toxicity of Micronutrients.

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12. How are minerals absorbed by plants?

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13. Explain translocation of solutes.

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14. Describe soil as reservoir of essential elements.

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15. Describe nitrogen cycle.

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16. Explain : Biological Nitrogen Fixation.

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17. Which steps are associated with nodule formation?

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18. Explain the process/mechanism of nitrogen fixation.

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19. Explain Fate of Ammonia

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Section B Give Differences

1. Micronutrients and Macronutrients.

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2. Soil culture and Hydroponics.

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3. Reductive Amination and Trans Amination.

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Section B Give Scientific Reasons

1. Hydrophonic method is most suitable for plant culture.

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2. Soil is known as reservoir of minerals elements.

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3. Leguminous plants are full of protein.

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Section C Definition Explanation Terms Full Name

1. Definitions Mineral nutrition:

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2. Definitions Essential mineral elements

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3. Definitions Macronutrient

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4. Definitions Micronutrient

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5. Definitions Mobilised elements

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6. Definitions Immobilised elements

View Text Solution

7. Definitions Chlorosis

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8. Definitions Necrosis

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9. Definitions Ammonification

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10. Definitions Nitrogen fixation

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11. Definitions Biological nitrogen fixation

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12. Definitions Root Nodules

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Section C Full Name

1. Full name N_2

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2. Full name NH_4^+

View Text Solution

3. Full name NH_2

View Text Solution

4. Full name $NADP$

View Text Solution

5. Full name $RuBisCO$

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Section D Textual Exercise

1. All elements that are present in a plant need not be essential to its survival' Comment.

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2. Why is purification of water and nutrient salts so important in studies involving mineral nutrition using hydroponics?

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3. Explain with examples: Macronutrients,Micronutrients, beneficial nutrients, toxic elements and essential elements.

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4. Name at least fire different deficiency symptoms in plants. Describe them and correlate them with the concerned mineral deficiency.

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5. If a plant shows a symptom which could develop due to deficiency of more than one nutrient, how would you find out experimentally, the real deficient mineral element.

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6. Why is that in certain plants deficiency symptoms appear first in younger parts of the plant while in others they do so in mature organs?

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7. What are the conditions necessary for fixation of atmospheric nitrogen by Rhizobium? What is their role in N_2 fixation?

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Section D Textual Exercis True Or False

1. Which of the following statements are true? If false correct them?

Every mineral element that is present in a cell is needed by the cell.

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2. Which of the following statements are true? If false correct them?

Nitrogen as a nutrient element, is highly immobile in the plants.

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Section E Solution Of Ncert Exemplar Multiple Choice Questions

1. Which one of the following roles is not characteristic of an essential element?

A. being a component of biomolecules

B. changing the chemistry of soil

C. being a structural component of energy related chemical

D. activation or inhibition of enzymes

Answer:

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2. Which one of the following statements can best explain the term critical concentration of an essential element?

A. essential element concentration below which plant growth is retarded

B. essential element concentration below which plant growth becomes enhanced

C. essential element concentration below which plant remains in the vegetative phase

D. none of the above

Answer:

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3. Which of the following symptoms is not due to manganese toxicity in plants

A. calcium translocation in shoot apex is inhibited

B. Deficiency in both iron and Nitrogen is induced

C. Appearance of brown spot surrounded by chlorotic veins

D. none of the above

Answer:

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4. Reaction carried out by N_2 fixing microbes include.

$(a) 2NH_3 + 3O_2 \rightarrow 2NO_2^- + 2H^+ + 2H_2O \ldots\ldots\ldots (i)$

(b) $2NO_2 + O_2 \rightarrow 2NO_3$.....(ii)

Which of the following statements about these equations is not true?

A. Step (i) is carried out by Nitrosomonas or Nitrococcus

B. Step (ii) is carried out by Nitrobacter

C. Both steps (i) and (ii) can be called nitrification

D. Bacteria carrying out these steps are usually photoautotrophs

Answer:

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5. With regard to the biological nitrogen fixation by Rhizobium in association with soyabean, which one of the following statement/ statements does not hold true.

A. Nitrogenase may require oxygen for its functioning

B. Nitrogenase is Mo-Fe protein

C. Leg-haemoglobin is a pink coloured pigment

D. Nitrogenase helps to convert N_2 gas into two molecules of ammonia

Answer:

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6. Match the elements with its associated funtions/roles and choose the correct option among given below:

A. $a-I, b-iic-iiid-ive-v$

B. $a-ivb-Ic-iiid-iie-v$

C. $a-iiib-iic-ivd-ve-i$

D. $a-iib-iiic-vd-Ie-iv$

Answer:

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7. Plants can be grown in

A. soil with essential nutrients

B. water with essential nutrients

C. either water or soil with essential nutrients

D. water or soil without essential nutrients

Answer:

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Section E Solution Of Ncert Exemplar Very Short Answer

1. Name a plant which accumulate silicon.

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2. Mycorrhiza is a mutualistic association, How do the organism involved in this association gain from each other.

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3. Nitrogen fixation is shown by prokaryotes and not eukaryotes. Comment.

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4. Carnivorous plants like Nepenthese and Venus fly trap have nutritional adaptions. Which nutrient do they especially obtain and from where?

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5. Think of a plant which lacks chlorophyll. From where will it obtain nutrition? Give an example of such a type of plant?

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6. Name an insectivorous angiosperm.

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7. A farmer adds azotobacter culture to soil before sowing maize. Which mineral element is being replenished?

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8. What type of conditions are created by leg-hemoglobin in the root nodule of a legume?

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9. What is common to Nepenthes, Utricularia and Drosera with regard to mode of nutrition?

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10. Plants with zinc deficiency show reduced biosynthesis is....

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11. Yellowish edges appear in leaves deficient in...

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12. Name the macronutrient which is a component of all organic compounds but is not obtained from soil.

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13. Name one non-symbiotic nitrogen fixing prokaryote.

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14. Rice fields produce an important green house gas. Name it.

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15. Complete the equation for the reductive amination.

$$-^{?} + NH_4^+ + NADP \rightarrow^{?} Glutamate + H_2O + NADP$$

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16. Excess of Mn in soil leads to deficiency of Ca, Mg and Fe. Justify.

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Section E Solution Of Ncert Exemplar Short Answer Type Questions

1. How is sulphur important for plants Name the amino acids in which it is present.

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2. How are organisms like pseudomonas and Thiobacillus of great significance in nitrogen cycle?

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3. Carefully observed the following figure.

(a) Name the technique shown in the figure and the scientist who demonstrated this technique for the first

time.

(b) Name atleast three plants for which this technique can be employed for their commercial production.

(c) What is the significance of aerating tube and feeding funnel in this setup?

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4. Name the most crucial enzyme found in root nodules for N_2- fixation? Does it require a special pink coloured pigment for its functioning? Elaborate.

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5. How are the terms critical concentration and deficient different from each other in terms of concentration of an essential element in plants? Can you find the values of critical concentration and deficient for minerals - Fe and Zn?

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6. Carnivorous plants exhibit nutritional adaptation. Citing an example explain this fact.

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7. A farmer adds/supplies Na, Ca, Mg and Fe regularly to his field and yet he observes that the plants show deficiency of ca,Mg and Fe Give a valid reason and suggest a way to help the farmer improve the growth of plants.

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Section E Solution Of Ncert Exemplar Long Answer Type Questions

1. It is observed that deficiency of a particular element showed its symptoms initially in older leaves and then in younger leaves.

(a) Does it indicate that the element is actively mobilized or relatively immobile?

(b) Name two elements which are highly mobile and two which are relatively immobile.

(c) How is the aspect of mobility of elements important to horticulture and agriculture.

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2. We find that Rhizobium forms nodules on the roots of leguminous plants. Also Frankia another microbe forms nitrogen fixing nodules on the roots of non-leguminous plant Alnus.

(a) can we artifically induce the property of nitrogen fixation in a plant, leguminous or non leguminous

(b) What kind of relationship is observed between mycorrhiza and pine trees?

(c) Is it necessary for a microbe to be in close association with a plant to provide mineral nutrition. Explain with the help of one example.

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3. With the help of examples describe the classification of essential elements based on the function they perform.

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4. We know that plants require nutrients ,If we supply these in excess, will it be beneficial to the plants? IF yes how/If no why?

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5. Trace the events starting from the coming in contact of Rhizobium to a leguminous root till nodule formation. Add a note importance of leghemoglobin.

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6. Hydroponics have been shown to be a successful technique for growing of plants. Yet most of the crops

are still grown on land . Why?

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Questions For Module Important Mcq For Neet

1. Which enzyme is essential for the formation of nitrogen?

A. Nitrogenase

B. Nitrate redctase

C. Transferase

D. Transaminase

Answer:

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2. boron is present in green plants for

A. Transport of sugar

B. For activation of enzymes

C. As cofactor of enzymes

D. for photosynthesis

Answer:

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3. Why is Manganese essential?

A. for the formation of cellwall

B. Photolysis of H_2O during photosynthesis

C. for the synthesis of chlorophyll

D. for the synthesis of nucleic acid

Answer:

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4. What is the function of leghaemoglobin is root nodules of leguminosae?

A. Inhibits activation of nitrogenase

B. Removes O_2

C. Differentiation of root nodules

D. nif gene is expressed

Answer:

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