



BIOLOGY

BOOKS - CENGAGE BIOLOGY (HINGLISH)

MINERAL NUTRITION

Exercise

1. Which is not a criterion for the essentiality of a mineral?

A. Direct role in metabolism

B. Requirement is specific

C. Deficiency causes hunger signs

D. Dispensable for growth

Answer: D



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2. Essential elements are

A. Only macronutrients

B. Only micronutrients

C. Both macro and micronutrients

D. C, H, O and N only

Answer: C



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3. Which is not a trace element ?

A. Mn

B. Cu

C. Mo

D. K

Answer: D



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4. Which is not a true statement regarding macronutrients?

A. Macronutrients form plant structure.

B. Macronutrients become toxic when present in excess.

C. Macronutrients have no role in electron transfer.

D. Macronutrients develop osmotic potential.

Answer: B



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5. Choose the false statement regarding micronutrients.

A. Micronutrients become toxic in excess.

B. Micronutrients do not cause osmotic potential.

C. Micronutrients have little role in protoplasmic structure

D. Micronutrients play a secondary role in enzyme activation.

Answer: D



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6. Deficiency in plant growth and disorders caused by the reduced availability of a critical element is called

- A. Critical deficiency
- B. Secondary deficiency
- C. Primary deficiency
- D. Complete deficiency

Answer: C



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7. Who prescribed a medium containing microelements for the first time?

- A. Gericke
- B. Arnon Hoagland

C. Knop

D. Stout

Answer: B



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8. Excess of manganese may induce the deficiencies of

A. Iron

B. Calcium

C. Magnesium

D. All of these

Answer: D



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9. Partial mineral element is

A. N

B. P

C. K

D. S.

Answer: A



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10. The deficiency of which element causes the deficiency of nitrogen?

A. Mo

B. K

C. Mn

D. S

Answer: A



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11. Minerals associated with redox reaction are

A. N, Cu

B. Fe, Cu

C. Fe, K

D. Mn, Mo

Answer: B



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12. Minerals which maintain cation-anion balance in cells are

A. Cl, K

B. Fe, Cu

C. K,P

D. Ca, Fe

Answer: A



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13. Interveinal chlorosis is due to the deficiency of

A. Fe

B. Mn

C. N

D. B

Answer: A

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14. Match columns I and II correctly.

Mineral	Deficiency symptoms
(a) <i>Cu</i>	(i) Malformed leaves
(b) <i>Zn</i>	(ii) Grey spots leaves
(c) <i>Mn</i>	(iii) Splitting bark
(d) <i>B</i>	(iv) absence of root nodules

A. (a) \rightarrow (iii), (b) \rightarrow (i), (c) \rightarrow (iv), (d) \rightarrow (ii)

B. (a) \rightarrow (iii), (b) \rightarrow (i), (c) \rightarrow (ii), (d) \rightarrow (iv)

C. (a) \rightarrow (iii), (b) \rightarrow (ii), (c) \rightarrow (iv), (d) \rightarrow (i)

D. (a) \rightarrow (i), (b) \rightarrow (ii), (c) \rightarrow (iii), (d) \rightarrow (iv)

Answer: B

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15. Which of the following groups of elements are mobile?

A. Fe, Ca, B

B. N, P, K

C. B, K, Ca

D. Ca and K

Answer: B

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16. Which of the following elements are required for chlorophyll synthesis?

A. Fe and Mg

B. Mo and Ca

C. Cu and Ca

D. Ca and K

Answer: A



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17. The core metal of chlorophyll is

Or

Which element is left when chlorophyll is burnt

A. Magnesium

B. Maganese

C. Iron

D. Sulfur

Answer: A



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18. Which one of the following is a sulfur - containing amino acid?

A. Valine

B. Methionine

C. Tryptophan

D. Phenylalanine

Answer: B



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19. Copper deficiency leads to

A. Exanthema

B. Whiptail of cauliflower

C. Little leaf condition

D. Interveinal chlorosis

Answer: A



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20. Phosphorus is found maximum in

A. Roots

B. Fruits

C. Flowers

D. None of these

Answer: B



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21. Which of the following is required for auxin synthesis?

A. Calcium

B. Zinc

C. Sugars

D. Proteins

Answer: B



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22. Reversible binding of cations, a property possessed by clay particle, is known as

- A. Retentive capacity
- B. Cation exchange
- C. Adsorption
- D. Chelation

Answer: B



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23. A characteristic of ion channels is/are

- A. They are transmembrane proteins functioning as selective pores
- B. They were discovered by Neher and Sakman
- C. They are gated channels
- D. All of these

Answer: D



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24. The theory of Donnan equilibrium explains the presence of some

- A. Fixed diffusible cations on the inner side
- B. Fixed non-diffusible anions on the inner side
- C. Non-fixed diffusible anions on the inner side
- D. Non-fixed diffusible cations on the inner side

Answer: B



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25. Mineral salts which are absorbed by the roots from the soil, are in the form of

- A. Very dilute solution
- B. Dilute solution
- C. Concentrated solution
- D. Very concentrated solution

Answer: A



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26. Movement of electrolytes through the roots is generally

- A. Against the electrochemical gradient and requires energy.

B. Along the electrochemical gradient and does not require energy

C. A passive process

D. Dependent on aquaporins

Answer: A



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27. Ionic uptake against electrochemical gradient without the expenditure of metabolic energy can be explained by

A. Ion exchange

B. Donnan equilibrium

C. Carrier proteins

D. Both (1) and (2)

Answer: D



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28. Transpiration pull or water tension in leaf is responsible for which one of the following methods of absorption of minerals by the plants from soil?

A. Active absorption of minerals

B. Mass flow

C. Donnan equilibrium

D. Ionic exchange

Answer: A



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29. If nitrogen is bubbled in the rooting medium, active absorption of minerals will

A. Increase

B. Decrease

C. Remain same

D. Stop immediately

Answer: B



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30. During ionic flux, uptake of ions into inner space is

- A. Active
- B. Passive
- C. Energy dependent
- D. Both (1) and (3)

Answer: D



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31. Carrier proteins for active salt uptake

- A. Have pores
- B. Form complex with ions
- C. Function under transpiration pull
- D. All of these

Answer: B



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32. The translocation of solute is

- A. Equal to the rate of translocation of water

B. Dependent on transpiration pull

C. Through xylem vessel

D. All of these

Answer: D



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33. Find the odd one (w.r.t. critical element).

A. Nitrogen

B. Potassium

C. Nickel

D. Phosphorus

Answer: C



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34. The process of conversion of $NH_4 \rightarrow NO_2 \rightarrow NO_3$ is called

A. Ammonification

B. Nitrification

C. N_2 fixation

D. Denitrification

Answer: B



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35. Which of the following is/are diazotrophs?

A. Rhizobium and Azotobacter

B. Frankia and Klebsiella

C. Anabaena and Nostoc

D. All of these

Answer: D



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36. Which is not true for nitrogenase enzyme in root nodules in legumes?

A. Synthesized by nit genes of Rhizobium

B. Site of reduction of N_2 into NH_3

C. It is a Mo-Fe protein

D. Resistant to O_2 concentration

Answer: B



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37. Cell division in root nodules is promoted by _____ secreted by plant and _____ secreted by bacteria.

A. Auxin, Cytokinin

B. Cytokinin, Auxin

C. Auxin, Leghemoglobin

D. Nitrogenase, Leg hemoglobin

Answer: A



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38. Conversion of $NO_3 \rightarrow NO_2 \rightarrow NH_4$ is called _____ and is catalysed by

A. Nitrate assimilation, nitrate and nitrite reductase

B. Nitrification, nitrate and nitrite reductase

C. Ammonification, glutamate dehydrogenase

D. Denitrification, transaminase

Answer: A

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39. Transported and storage form of nitrogen in plants are

- A. Amides
- B. Polypeptides
- C. Amino acids
- D. α -ketoglutaric acids

Answer: A

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40. The amino acid which plays a central role in nitrogen metabolism is/are

- A. Glutamic acid
- B. α -ketoglutaric acid
- C. Aspartic acid
- D. Double aminated keto acids

Answer: A



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41. Leghemoglobin is found in which one of the following organisms?

A. Anthoceros

B. Aulosira

C. Nostoc

D. Groundnut

Answer: D



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42. Nitrite reductase enzyme is used to convert

- A. Nitrate into nitrite ion
- B. Nitrogen of atmosphere into ammonia
- C. Ammonia into nitrates
- D. Nitrite to ammonium ion

Answer: D



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43. What do hemi parasites absorb from host ?

- A. Water and minerals
- B. Sugar
- C. Both (1) and (3)

D. Nothing

Answer: A



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44. A small rootless aquatic herb in which a portion of leaf forms a tiny sac or bladder which traps water insects is

A. *Dionaea*

B. *Utricularia*

C. *Sarracenia*

D. *Drosera*

Answer: B



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45. The process of conversion of NO_2 , NO_3 , NH_3 to N_2 is called _____ and is done by

- A. Nitrification, Nitrosomonas
- B. Denitrification, Pseudomonas
- C. Nitrate assimilation, Nitrogenase
- D. Ammonification, Bacillus

Answer: D



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46. Which one of the following ions is essential for photolysis of water?

A. Ca and Cl

B. Mn and Cl

C. Zn and I

D. Cu and Fe

Answer: B



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47. Which of the following is related with the transfer of food material?

A. Xylem

B. Collechyma

C. Phloem

D. Parenchyma

Answer: C



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48. Which of the following elements is most mobile in plant metabolism?

A. Calcium

B. Phosphorus

C. Carbon

D. Magnesium

Answer: B



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49. The process of converting ammonia to nitrate by bacteria is known as

A. Ammonification

B. Nitrification

C. Nitrogen fixation

D. Denitrification

Answer: B



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50. Root nodules which are present in plants are meant for fertilizers and are found in/on

A. Certain leguminous plants

B. Casuarina

C. Almus

D. All of the above

Answer: D



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51. Agriculturists have reported about 40-50% higher yields of rice by applying

- A. Azolla
- B. Cyanophycean members
- C. Mycorrhizae
- D. Thorn forest

Answer: A



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52. A nutrient element essential for the formation of microtubules of the mitotic spindle apparatus during cell division is

A. Phosphorus

B. Sulfur

C. Calcium

D. Zinc

Answer: C



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53. The non-symbiotic N_2 fixer is

- A. Anabaena
- B. Rhizobium
- C. Azotobactor
- D. Azolla

Answer: C



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54. The N_2 -fixing bacterium associated with root nodules of legumes is known as

A. Azotobacter

B. Nitrobacter

C. Lactobacillus

D. Rhizobium

Answer: D



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55. The bacteria which converts nitrate in to molecular nitrogen is called

A. Nitrifying bacteria

B. Methanobacteria

C. Diazotrophic bacteria

D. Denitrifying bacteria

Answer: D



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56. The bacterium capable of anaerobic N_2 fixation is known as

A. Clostridium

B. Bacillus

C. Azotobacter

D. Rhizobium

Answer: D



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57. Which element is essential for the photolysis of water?

A. Nitrogen

B. Manganese

C. Carbon

D. Oxygen

Answer: B



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58. Which of the following can utilise molecular nitrogen (N_2) as nutrient for growth ?

A. Rhizobium

B. Spirogyra

C. Mucor

D. Methanococcus

Answer: A



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59. Sinks are related to

A. Transport of organic solutes

B. Stomata

C. Enzymes

D. Phytochrome

Answer: A



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60. Supply ends in transport of solute are

A. Green leaves and storage organs

B. Root and stem

C. Xylem and phloem

D. Hormones and enzymes

Answer: A



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61. Which of the following is a biofertilizer?

A. Funaria

B. Fern

C. Anabaena

D. Fungus

Answer: C



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62. Mo is related with

- A. N_2 fixation
- B. Flower induction
- C. Chromosome contraction
- D. Carbon collection

Answer: A



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63. Which one of the following elements is present in chlorophylls?

A. Manganese

B. Magnesium

C. Copper

D. Iron

Answer: B



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64. Which one of the following bacteria has potential for nitrogen fixation

A. Nitrosomonas

B. Nitrobacter

C. Nitrosococcus

D. Rhizobium

Answer: D



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65. For nitrogen fixation, the pigment useful is

A. Nitrogenase

B. Hemoglobin

C. Myoglobin

D. Leghemoglobin

Answer: D



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66. Which of the following is a symbiotic bacteria?

A. Rhizobium

B. Azotobacter

C. Clostridium

D. Streptomyces

Answer: A



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67. The metal ion involved in stomatal regulation is

A. Fe

B. Mg

C. Zn

D. K

Answer: D



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68. Which of the following is a nitrogen-fixing organism?

A. Some BGA

B. Rhizobium

C. Both (1) and (2)

D. Aspergillus

Answer: C



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69. Which of the following bacteria is involved in the two-step conversion of NH_3 into nitrate?

A. Azotobacter and Nitrosomonas

B. Nitrosomonas and Nitrobacter

C. Azotobacter and Achromobacter

D. Pseudomonas and Nitrobacter

Answer: B



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70. A metal ion involved in stomatal regulation is

A. Iron

B. Potassium

C. Zinc

D. Magnesium

Answer: B



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71. The plant ash is an indication of

- A. Organic matter of plant
- B. Waste product
- C. Mineral salts absorbed by plants
- D. None of these

Answer: C



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72. Plant ash has maximum content of

A. Mg

B. Fe

C. K

D. B

Answer: A



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73. Which of the following is a part of cytochrome?

A. Mg

B. Zn

C. Fe

D. Ca

Answer: C



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74. Food in plants is translocated in the form of

A. Glucose

B. Starch

C. Sucrose

D. Fructose

Answer: C



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75. Which of the following is not related to N_2 fixation?

A. Rhizobium

B. Anabaena

C. Pseudomonas

D. Azotobacter

Answer: C



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76. Which of the following is not caused by deficiency of mineral nutrition

- A. Chlorosis
- B. Etiolation
- C. Shortening of internodes
- D. Necrosis

Answer: B



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77. Which is essential for root hair growth

Or

The mineral present in cell wall is

A. Na

B. Ca

C. K

D. Mg

Answer: B



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78. What happens when we inoculate Rhizobium in wheat field?

- A. No increase in production (nitrogen content of soil remains same)
- B. A lot of increase in production (nitrogen content of soil increase)
- C. Fertility of soil decreases
- D. Fertility of soil increases

Answer: A



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79. Magnesium is found in

A. Chlorophyll

B. Carotenoid

C. Phycobilin

D. Cytochrome

Answer: A



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80. Which of the following is a trace element ?

A. S

B. Mg

C. Cu

D. P

Answer: C



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81. Which one of the following organisms may respire in the absence of oxygen

A. Azotobacter

B. Clostridium

C. Rhizobium

D. Lactobacillus

Answer: B



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82. Which of the following is not a trace element?

A. Zn

B. Mn

C. Mg

D. Cu

Answer: C



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83. Symbiotic microorganism is

A. Clostridium

B. Azotobacter

C. Rhizobium

D. Chromatium

Answer: C



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84. Essential mineral nutrients are the elements

A. In the absence of which plants cannot complete their life cycle

B. Which cannot be replaced by other element in its function

C. Which are directly associated with the plant metabolism

D. All of the above

Answer: D



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85. Stomatal movement is controlled by

A. Na

B. Mg

C. K

D. P

Answer: C



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86. Which of the following enzymes fixes nitrogen?

A. Nitrate reductase

B. Nitrogenase

C. PEP carboxylase

D. RuBisCo

Answer: B



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87. The bacterium capable of anaerobic N_2 fixation is known as

A. Azotobacter

B. Rhizobium

C. Bacillus

D. Clostridium

Answer: B



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88. In plant metabolism, phosphorus plays a major role to

- A. Evolve oxygen during photosynthesis
- B. Create aerobic condition
- C. Generate metabolic energy
- D. Evolve carbon dioxide during respiration

Answer: C



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89. Photosynthetic food material is transported in the form of

A. Glucose

B. Sucrose

C. Starch

D. Fructose

Answer: B



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90. Chlorosis is caused due to the deficiency of

A. Mg

B. Ca

C. B

D. Mn

Answer: A



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91. Which element are considered as balancing elements?

A. Ca and K

B. C and H

C. N and S

D. Mg and Fe

Answer: A



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92. The group of mineral nutrients known as frame work elements is

A. N, S, P

B. C, H, O

C. Mg, Fe, Zn

D. Zn, Mn, Cu

Answer: B



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93. Which element essential for stability of chromosome structure?

A. Zn

B. Ca

C. Mo

D. Fe

Answer: B



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94. "Reclamation" and "Little leaf" disease, caused by deficiency of

A. Zn and Mo

B. Cu and Zn

C. Cu and B

D. Mn and Cu

Answer: B



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95. Which element is required in comparatively least quantity for the growth of plant?

A. Zn

B. N

C. P

D. Ca

Answer: A



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96. Which of the following essential element is not properly placed in the given category?

A. Cu

B. Zn

C. Mg

D. Mn

Answer: C



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97. Which mineral nutrients are called critical element for crops?

A. N, P, K

B. C, H, O

C. N, S, Mg

D. K, Ca, Fe

Answer: A



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98. The mineral nutrient mainly concerning with apical meristematic activity is

A. K

B. Ca

C. N

D. S

Answer: B



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99. Little leaf disease is caused by

- A. Zn-deficiency
- B. Cu-deficiency
- C. Mo-deficiency
- D. Mn-deficiency

Answer: A



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100. The major portion of the dry weight of plants comprises of

Or

Frame work elements in plants are

- A. Nitrogen, phosphorus and potassium
- B. Calcium, magnesium and sulfur
- C. Carbon, nitrogen and hydrogen
- D. Carbon, hydrogen, and oxygen

Answer: D



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101. Which one of the following elements plays an important role in biological nitrogen fixation

or

Browning of cauliflower takes due to deficiency of which one of the following elements

A. Copper

B. Manganese

C. Zinc

D. Molybdenum

Answer: D



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102. Stomata of CAM plants

- A. Are always open
- B. Open during the day and close at night
- C. Open at night and close during the day
- D. Never open

Answer: C



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103. Stomata of a plant open due to

- A. Influx of potassium ions

B. Efflux of potassium ions

C. Influx of hydrogen ions

D. Influx of calcium ions

Answer: A



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104. Plants deficient of element zinc, show its effect on the biosynthesis of plant growth hormone

A. Auxin

B. Cytokinin

C. Ethylene

D. Abscisic acid

Answer: A



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105. In which one of the following nitrogen is not a constituent : -

A. Idioblast

B. Bacteriochlorophyll

C. Invertase

D. Pepsin

Answer: A



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106. Gray spots of oat are caused by the deficiency of

A. Cu

B. Zn

C. Mn

D. Fe

Answer: C



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107. The most abundant element present in the plants is

Or

Which of the following is not absorbed through soil

A. Iron

B. Carbon

C. Nitrogen

D. Manganese

Answer: B



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108. Ability of Venus Fly Trap to capture insects is due to

- A. Chemical stimulation by the prey
- B. A passive process requiring no special ability on the part of the plant
- C. Specialized muscle - like cells
- D. Rapid turgor pressure changes

Answer: D



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109. The deficiencies of micronutrients not only affects growth of plants, but also vital functions such as photosynthetic and mitochondrial electron flow. Among the list given below, which group of three elements shall

affect the most, both photosynthetic and mitochondrial electron transport ?

A. Cu, Mn, Fe

B. Co, Ni, Mo

C. Mn, Co, Ca

D. Ca, K, Na

Answer: A



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110. Potometer works on the principle of

- A. Amount of water absorbed equals the amount transpired
- B. Osmotic pressure
- C. Root pressure
- D. Potential difference between the tip of the tube and that of the plant

Answer: A



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111. Farmers in a particular region were concerned that pre mature yellowing of leaves of a pulses crop might

cause decrease in the yield. Which treatment could be most beneficial to obtain maximum seed yield?

- A. Removal of all yellow leaves and spraying the remaining green leaves with 2,4,5-trichlorophenoxy acetic acid
- B. Application of iron and magnesium to promote synthesis of chlorophyll
- C. Frequent irrigation of the crop
- D. Treatment of plants with cytokinins along with a small dose of nitrogenous fertilizer

Answer: B



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112. Sulphur is an important nutrient for optimum growth and productivity in

A. Fiber crops

B. Oil seed crops

C. Pulse crops

D. Cereals

Answer: B



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113. Assertion: Some mineral nutrients are essential.

Reasoning: They can be synthesized by the plants.

- A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
- B. If both Assertion and Reason are true, but the Reason is not the correct explanation of the Assertion.
- C. If Assertion is true, but Reason is false.
- D. If both Assertion and Reason are false.

Answer: B



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114. Assertion: Ca^{++} cannot replace H^+ adsorbed on clay or humus particles.

Reasoning: The retentive capacity of Ca^{+2} is more than that of H^+ .

- A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
- B. If both Assertion and Reason are true, but the Reason is not the correct explanation of the Assertion.
- C. If Assertion is true, but Reason is false.
- D. If both Assertion and Reason are false.

Answer: B



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115. Assertion: Chelating agents used in improving the availability of some minerals in soil are actually electron acceptors.

Reasoning: They increase solubility of some minerals in acidic soils.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true, but the Reason is not the correct explanation of the

Assertion.

C. If Assertion is true, but Reason is false.

D. If both Assertion and Reason are false.

Answer: B



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116. Assertion: N, P, K are called critical elements.

Reasoning: They become deficient easily in soil due to leaching and higher requirement.

A. If both Assertion and Reason are true and the

Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true, but the Reason is not the correct explanation of the Assertion.

C. If Assertion is true, but Reason is false.

D. If both Assertion and Reason are false.

Answer: D



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117. Assertion: When cation uptake exceeds anion uptake, certain changes occur in the ionic composition of cell.

Reasoning: H_2O and organic acids produced within cell dissociate and H^+ move outside the cell.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true, but the Reason is not the correct explanation of the Assertion.

C. If Assertion is true, but Reason is false.

D. If both Assertion and Reason are false.

Answer: A



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1. a plant requires magnesium for :

A. Cell wall development

B. Holding cells together

C. Protein synthesis

D. Chlorophyll synthesis

Answer: D



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2. Which of the following is a flowering plant with nodules containing filamentous nitrogen-fixing microorganism

A. *Cicer arietinum*

B. *Casuarina equisetifolia*

C. *Crotalaria juncea*

D. *Cycas revolute*

Answer: B



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3. About 98 percent of the mass of every living organism is composed of just six elements including carbon, hydrogen, nitrogen, oxygen and

A. Calcium and phosphorus

B. Phosphorus and sulfur

C. Sulfur and magnesium

D. Magnesium and sodium

Answer: B



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4. Which one of the following elements is not an essential micronutrient for plant growth?

A. Ca

B. Mn

C. Zn

D. Cu

Answer: A



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5. Carbohydrates are commonly found as starch in plant storage organs. Which of the following five properties of

starch (A-E) make it useful as a storage material

- (A) Easily translocated
- (B) Chemically non-reactive
- (C) Easily digested by animals
- (D) Osmotically inactive
- (E) Synthesized during photosynthesis

The useful properties are :

A. (I), (III), and (V)

B. (I) and (V)

C. (II) and (III)

D. (II) and (IV)

Answer: D



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6. Nitrogen fixation in root nodules of *Alnus* is brought about by

A. *Frankia*

B. *Azorhizobium*

C. *Bradyrhizobium*

D. *Clostridium*

Answer: A



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7. Nitrogen fixation in root nodules of *Alnus* is brought about by

A. *Frankia*

B. *Azorhizobium*

C. *Bradyrhizobium*

D. *Clostridium*

Answer: A



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8. Guard cells help in

- A. Fighting against infection
- B. Protection against grazing
- C. Transpiration
- D. Guttation

Answer: C



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9. Manganese is required in

- A. Chlorophyll synthesis
- B. Nucleic acid synthesis
- C. Plant cell wall formation

D. Photolysis of water during photosynthesis

Answer: D



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10. Which of the following is a symbiotic nitrogen fixer ?

A. Azolla

B. Glomus

C. Azotobacter

D. Frankia

Answer: D



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11. Which one of the following pairs is wrongly matched?

- A. Textile-amylase
- B. Detergents-lipase
- C. Alcohol-nitrogenase
- D. Fruit juice-pectinase

Answer: C



12. An element playing important role in nitrogen fixation is

A. Manganese

B. Zinc

C. Molybdenum

D. Copper

Answer: C



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13. Which one of the following is not a micronutrient

A. Zinc

B. Boron

C. Molybdenum

D. Magnesium

Answer: D



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14. The chief water conducting elements of xylem in gymnosperms are

A. Transfusion tissue

B. Tracheids

C. Vessels

D. Fibers

Answer: B



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15. Which one of the following structures between two adjacent cells is an effective transport pathway

" " Or

Cytoplasm of one cell is connected with other through

A. Endoplasmic reticulum

B. Plasmalemma

C. Plasmodesmata

D. Plastoquinones

Answer: C



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16. One of the free-living, anaerobic nitrogen-fixer is

Or

which of the following is a photoautotrophic bacterium

A. Rhizobium

B. Azotobacter

C. Beijerinckia

D. Rhodospirillum

Answer: D



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17. The common nitrogen-fixer in paddy fields is

A. Oscillatoria

B. Frankia

C. Rhizobium

D. Azospirillum

Answer: D



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18. Nitrifying bacteria:-

- A. reduce nitrates to free nitrogen
- B. oxidize ammonia to nitrates
- C. convert free nitrogen to nitrogen compounds
- D. convert proteins into ammonia

Answer: B



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19. Which one of the following elements (micronutrients) in plants is not remobilised ?

A. Sulphur

B. Phosphorus

C. Calcium

D. Potassium

Answer: C



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20. A prokaryotic autotrophic nitrogen fixing symbiont is found in

A. Pisum

B. Alnus

C. Cycas

D. Cicer

Answer: C



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21. Companion cells are closely associated with

Or

Transport of food material in higher plants takes place through

A. Transfusion tissue

B. Tracheids

C. Sieve elements

D. Companion cells

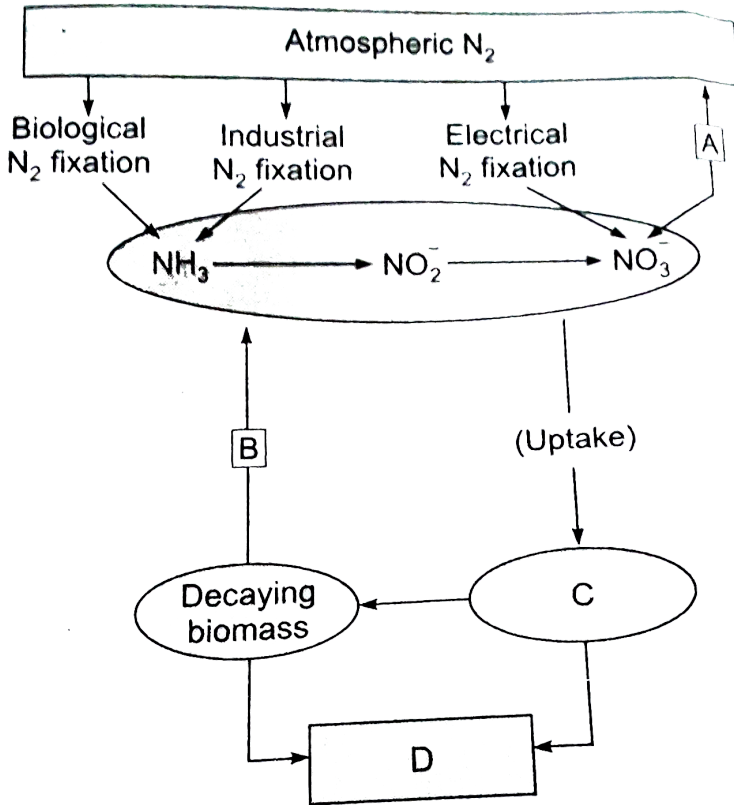
Answer: C



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22. Study the cycle shown in Fig. 12.7 and select the option which gives correct words for all the four blanks

A, B, C, and D.



A.

(A) (B) (C) (D)

Dentrification Ammonification Plants Animals

B.

(A) (B) (C) (D)

Nitrification Dentrification Animals Plants

C.

(A) (B) (C) (D)

Dentrification Nitrification Plants Animals

D.

(A)	(B)	(C)	(D)
Nitrification	Ammonification	Animals	Plants

Answer: A



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23. Leguminous plants are able to fix atmospheric nitrogen through the process of symbiotic nitrogen fixation. Which one of the following statements is not correct for this process of nitrogen fixation ?

A. Nodules act as sites for nitrogen fixation.

- B. The enzyme nitrogenase catalyses the conversion of atmospheric $N_2 \rightarrow NH_3$.
- C. Nitrogenase is is insensitive to oxygen.
- D. Leghemoglobin scavenges oxygen and is pinkish in color.

Answer: C



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24. The function of leghaemoglobin in the root nodules of legumes is:-

A. expression of nif gene

B. Inhibition of nitrogenase activity

C. oxygen removal

D. nodule differentiation

Answer: C



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25. A nitrogen fixing microbe associated with the fern Azolla in rice fields is

A. Anabaena

B. Frankia

C. Tolypothrix

D. Spirulina

Answer: A



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26. Best defined function of manganese in green plants is

- A. Calvin cycle
- B. Nitrogen fixation
- C. Water absorption
- D. Photolysis of water

Answer: D



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27. Which one of the following is correctly matched?

- A. Apoplast-Plasmodesmata
- B. Potassium-Readily immobilization
- C. Bakane of rice seedlings-F. Skoog
- D. Passive transport of nutrients-ATP

Answer: C



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28. Which one of the following is a wrong statement?

A. Root nodule forming nitrogen fixers live as aerobes under free-living conditions.

B. Phosphorus is a constituent of cell membranes, certain nucleic acids, and all proteins.

C. Nitrosomonas and Nitrobacter are chemoautotrophs.

D. Anabaena and Nostoc are capable of fixing nitrogen in free-living state also.

Answer: A



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29. For its activity, carboxypeptidase requires

A. Zinc

B. Iron

C. Niacin

D. Copper

Answer: A



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30. For its action, nitrogenase requires

A. High input of energy

B. Light

C. Mn^{2+}

D. Super oxygen radicals

Answer: A



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31. The first stable product of fixation of atmospheric nitrogen in leguminous plants is

A. NO_2^-

B. Ammonia

C. NO_3^-

D. Glutamate

Answer: B



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32. Deficiency symptoms of nitrogen and potassium are visible first in

A. Senescent leaves

B. Young leaves

C. Roots

D. Buds

Answer: A



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33. Which one gives the most valid and recent explanation for stomatal movement?

- A. Guard cell photosynthesis
- B. Transpiration
- C. Potassium influx and efflux
- D. Starch hydrolysis

Answer: C



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34. Minerals known to be required in large amounts for plant growth include

- A. magnesium, sulphur, iron, zinc
- B. phosphorus, potassium, sulphur, calcium
- C. calcium, magnesium, manganese, copper
- D. potassium, phosphorus, selenium, boron

Answer: B



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35. Root pressure develops due to

- A. Increase in transpiration
- B. Active absorption
- C. Low osmotic potential in soil
- D. Passive absorption

Answer: B



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36. During biological nitrogen fixation, inactivation of nitrogenase by oxygen poisoning is prevented by

- A. Cytochrome
- B. Leghaemoglobin

C. Xanthophyll

D. Carotene

Answer: B



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37. Roots play insignificant role in absorption of water in

A. Wheat

B. Sunflower

C. Pistia

D. Pea

Answer: C



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38. Which of the following characteristics is not shared by birds and mammals

- A. Ossified endoskeleton
- B. Breathing using lungs
- C. Viviparity
- D. Warm blooded nature

Answer: C



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39. Which is essential for the growth of root tip ?

A. Ca

B. Mn

C. Zn

D. Fe

Answer: C



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