

1. **True statement regarding criteria of essentiality.** []
A. Without essential element plant can not complete its life cycle.
B. Essential element can be replaced by another element.
C. Essential element participates in metabolic reaction directly.
D. It should be available from soil.
1) A & B 2) B & C 3) A & C 4) Only C
2. **Element that can be absorbed both in anionic and cationic forms** []
1) N 2) K 3) S 4) C
3. **Elements that crosses membrane passively** []
1) C, H, O 2) N, S, P 3) C, H, K 4) K, Ca, N
4. **Total essential mineral elements are** []
1) 16 2) 6 3) 14 4) 7
5. **True statement regarding uniporters** []
1) Uniporters utilizes proton motive force 2) Uniporters need hydrolysis of ATP
3) Uniporters can transfer both sides 3) They can carry two different solutes.
6. **Secondary active transporters** []
1) Utilize ATP 2) Co porters & Uniporters
3) Antiporters & Uniporters 4) Co porters
7. **Accumulation of solutes in plants depends on** []
1) Water potential 2) Membrane structure 3) Photosynthesis 4) Porters and soil
8. **Young leaves show the symptoms of deficiency with the deficiency of** []
1. Nitrogen 2. Phosphorus 3. Sulphur 4. Magnecium
9. **When a molecule moves across a membrane independent of other elements it is** []
1) Symport 2) Antiport 3) Co-port 4) Uniport
10. **Assertion (A): Variation in mineral content of plant tissues are influenced by several factors.** []
Reason(R): Criteria of essentiality differ from plant to plant.
1) Both A and R are true and R is the correct explanation of A.
2) Both A and R are true but R is not the correct explanation of A.
3) A is true, R is false 4) A is false, R is true

11. In 1804 de Saussure found that plant grown in dilute solution gain more dry weight as compared to the plants grown in distilled water. Inference from this experiment is

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| 1. Water is essential for growth | 2. Soil is essential for growth |
| 3. Quality of water influence the growth | 4. Soil is not necessary for growth |

12. Root system of a plant is covered with a bag of membrane that does not allow cations to pass through.

Root system is immersed in a solution containing KH_2PO_4 , KNO_3 , MgSO_4 , H_3BO_3 and Urea. The plant develop deficiency symptom of

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| 1. Phosphorus | 2. Boron |
| 3. Magnesium, potassium and nitrogen | 4. Magnesium and potassium |

13. Assertion (A): Soil is the source of nutrients for epiphytes Reason(R): Epiphytes do not have attachment to the soil.

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- 1) Both A and R are true and R is the correct explanation of A.
- 2) Both A and R are true but R is not the correct explanation of A.
- 3) A is true, R is false
- 4) A is false, R is true

14. Criteria for a nutrient to be called as micronutrient is

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|------------------------------|--------------------------------|
| 1) Less than 10^{-8} gr/mL | 2) Less than 10mmole/kg dry wt |
| 3) Less than 12gr/mL | 4) More than 10mmole/kg dry wt |

15. Aquaporins are

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- 1) Channels for the uphill movement of water
- 2) Protein molecules of membrane that allows the downhill movement of water
- 3) Open channels that allows water ion any direction
- 4) Hydrophilic proteins of the membrane

16. Protection against salt water in plants is due to

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|----------------|--------------|---------------|-------------------|
| 1) Antiporters | 2) Coporters | 3) Uniporters | 4) All symporters |
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17. Element required in minute amounts and absorbed as anion is

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|----------------|----------|------------|---------|
| 1) Phosphorous | 2) Boron | 3) Sulphur | 4) Zinc |
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18. Number of essential micronutrients

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|------|------|-------|-------|
| 1) 6 | 2) 8 | 3) 13 | 4) 16 |
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19. **Among the following statements identify the incorrect one** []
- 1) Translocation in vascular bundles is unidirectional
 - 2) Movement of water is unidirectional
 - 3) Mineral nutrients are transported in multidirectional pathways through phloem
 - 4) Organic solutes are transported in multidirectional pathways through phloem
20. **Movement of substances from higher concentration to lower concentration in** []
- 1) Facilitated diffusion of substances
 - 2) Active transport of ions
 - 3) Diffusion of gases
 - 4) All the above
21. **Incorrect statement regarding facilitated diffusion** []
- A. It can be inhibited by certain substances
 - B. Rate depends on the number of proteins in the membrane
 - C. facilitated diffusion needs energy to reach maximum rate
 - D. It creates concentration gradient across the membrane
- 1) A & B
 - 2) B & C
 - 3) C & D
 - 4) D & A
22. **Micronutrients are** []
1. Available in the soil only in small amounts
 2. Required by plants in small amounts
 3. Small molecules required by plants
 4. Useful, but not required by plant
23. **Primary active transporters are** []
1. Carrier proteins that utilize energy directly
 2. First transporters in mineral nutrition.
 3. Carriers that act with release of energy.
 4. Transporters that allow nutrients more against concentration gradient
24. **NO₃ movement is facilitated by** []
1. Symporters and protons
 2. Antiporters with another element
 3. Uniporters with protons
 4. Symporters with another element
25. **True statement regarding Active Transport** []
- A. It takes place only across protoplasmic membranes
 - B. It is not spontaneous.
 - C. It may occur from either a lower to higher or higher to lower concentrations.
 - D. It uses physical forces (non-metabolic forces)
1. A & B
 2. A, B & C
 3. A & C
 4. A, B, C & D

26. **Uniporters require** []
 1. Proton motive force 2. Direct energy
 3. Protons 4. Energy difference
27. **Source of mineral nutrients for plants like *Pistia* that are freely floating on the surface of water is** []
 1. Water 2. Atmosphere 3. Soil 4. Soil and water
28. **Technique of growing plants in water without using soil is** []
 1. Controlled growth 2. Hydroponics
 3. Green house culture 4. Dry farming
29. **Elements that generally accumulate in large amounts compared to the soil available concentrations is** []
 1. Nitrogen 2. Chloride 3. Sodium 4. Potassium
30. **Specific ions are acquired by root hairs by the process of** []
 1. Simple diffusion 2. Osmosis 3. Active transport 4. Facilitated diffusion
31. **Which of the following is not a micronutrient?** []
 1. Iron 2. Zinc 3. Molybdenum 4. Magnesium
32. **The microelement, needed for chlorophyll synthesis** []
 1. Boron 2. Iron 3. Sulfur 4. Copper
33. **Raisons soaked in water can..** []
 A. Absorb water B. Looses water
 C. Absorbs nutrients D. No exchange of nutrients and water
 1. A & B 2. A & C 3. Only B 4. Only D
34. **Manganese inhibits the uptake of** []
 1. Molybdenum 2. Calcium 3. Phosphorus 4. Nitrogen
35. **'Die-back' in Citrus is due to the deficiency of** []
 1. Cu 2. Mo 3. K 4. Ca
36. **Bronzing of legumes is due to the deficiency of** []
 1. Molybdenum 2. Chloride 3. Nickel 4. Phosphorus
37. **'Little leaf' is caused due to the deficiency of** []
 1. Zinc 2. Copper 3. Boron 4. Iron

