



# **BIOLOGY**

## **BOOKS - FULL MARKS BIOLOGY (TAMIL ENGLISH)**

### **MINERAL NUTRITION**

**Textbook Evaluation Questions Solved**

## 1. Identify correct match :

S. No.	Disease	S. No.	Elements
1.	Die back disease of <i>Citrus</i>	(i)	Mo
2.	Whip tail disease	(ii)	Zn
3.	Brown heart of turnip	(iii)	Cu
4.	Little leaf	(iv)	B

A. 1 (iii) 2 ( ii) 3 (iv) 4 (i)

B. 1(iii) 2 (i) 3 (iv) 4 (ii)

C. 1 (i ) 2 (iii) 3 (ii) 4 (iv)

D. 1 (iii) 2 (iv) 3 (ii) 4 (1)

**Answer: B**



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2. If a plant is provided with all mineral nutrients but, Mn concentration is increased, what will be the deficiency?

A. Mn prevent the uptake of Fe, Mg but not

Ca

B. Mn increase the uptake of Fe, Mg, and Ca

C. Only increase the uptake of Ca

D. Prevent the uptake Fe, Mg and Ca

**Answer: A**



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3. The element which is not remobilized?

A. Phosphorus

B. potassium

C. calcium

D. nitrogen

**Answer: C**



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4. Match the correct combination.

S. No.	Minerals	S. No.	Role
A	Molybdenum	1.	Chlorophyll
B	Zinc	2.	Methionine
C	Magnesium	3.	Auxin
D	Sulphur	4.	Nitrogenase

A. A - 1, B - 3, C - 4, D - 2

B. A - 2, B - 1, C - 3, D - 4

C. A - 4, B - 3, C - 1, D - 2

D. A - 4 , B - 2 , C - 1 , D - 3

**Answer: C**



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## 5. Identify the correct statement

- (i) sulphur is essential for amino acids cystine and methionine
- (ii) low level of N , K ,S and Mo affect the cell division
- (iii) Non -leguminous plant Alnus which contain bacterium frankia
- (iv) Denitrification carrird out by nitrosomonas and nitrobacter .

A. I, II are correct

B. I, II, III are correct

C. I only correct

D. all are correct

**Answer: B**



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**6.** The nitrogen is present in the atmosphere in huge amount but plants fail to utilize it .  
Why ?



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



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8. Plant A in a nutrient medium shows whiptail disease. Plant B in a nutrient medium shows a Little leaf disease. Identify mineral deficiency of plant A and B ?





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**9.** Write the role of nitrogenase enzyme in nitrogen fixation?



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**10.** Explain the insectivorous mode of nutrition in angiosperms ?



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## Additional Questions Solved Choose The Correct Answer

1. Identify the micronutrient.

A. Potassium

B. Phosphorous

C. Manganese

D. Magnesium

**Answer: C**



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2. Which mineral is essential for cell wall formation in Equisetum ?

A. Boron

B. Silicon

C. Cellulose

D. Carbon

**Answer: B**



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3. 'Law of Minimum' was proposed by

.....

A. Van Helmont

B. Von Sachs

C. Wood word

D. Liebig

**Answer: D**



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4. Identify the wrong statement(s).

(i) Molybdenum is a micronutrient.

(ii) Carbon, Hydrogen, Nitrogen are skeletal elements.

(iii) Manganese is the activator for RUBP carboxylase.

(iv) Potassium maintains osmotic potential of the cell.

A. (i) and (iv)

B. (ii) and (iii)

C. Only (ii)

D. Only (iv)

**Answer: B**



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**5. Siderophores are ..... Chelators.**

A.  $B$

B.  $Fe^{3+}$

C.  $Ca^{2+}$

D.  $Cl^{-}$

**Answer: B**



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**6. Match the following :**

(i) Boron	1. Nitrogen metabolism
(ii) Molybdenum	2. Formation of Porphyrin
(iii) Zinc	3. Translocation of sugars
(iv) Iron	4. Biosynthesis of auxin

A. (i) - 3, (ii) - 1, (iii) - 4, (iv) - 2

B. (i) - 2, (ii) - 3, (iii) - 4 , (iv) - 1

C. (i) - 3, (ii) - 4, (iii) - 2 , (iv) - 1

D. (i) - 4, (ii) - 1, (iii) - 2, (iv) - 3

**Answer: A**



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7. Exanthema in citrus caused by the deficiency of .....

A. Mo

B. Cu

C. B



D. Zn

**Answer: B**



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**8. Mottle leaf disease is a .....deficiency disease.**

A. Gibberellins

B. Cytokinin

C. Auxin

D. Ethylene

**Answer: C**



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9. Pollen germination requires  
..... mineral.

A. Copper

B. Molybdenum

C. Chlorine

D. Boron

**Answer: D**



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**10.** Which of the following toxicity cause precipitation of nucleic acid.

A. Manganese

B. Iron

C. Aluminium

D. Boron

**Answer: C**



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**11. The term soilless culture refers to .....**

A. Aeroponics

B. Aqua culture

C. Hydroponics

D. Drip irrigation

**Answer: C**



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**12. The term hydroponics was coined by**

.....

A. Arnon

B. David Durger

C. Liebig

D. Goerick

**Answer: D**



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**13. Which of the following is a free-living bacterium ?**

A. Rhizobium

B. Clostridium

C. Escherichia

D. Cyanobacteria

**Answer: B**



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**14.** Legume plants secrete .....which attracts Rhizobium.

A. Toluenes

B. Phenolics

C. Octanes

D. Xylenes

**Answer: B**



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**15.** In  $N_2$  , how many number of bonds are there between two nitrogen atoms?

A. Two

B. Four

C. Three

D. One



**Answer: C**



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**16.** Leghaemoglobin pigments removes .....to activate nitrogenase enzyme.

A. Co

B.  $CO_2$

C.  $O$

D.  $N$

**Answer: C**



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**17. Which bacterium is NOT involved in Denitrification ?**

A. Pseudomonas

B. Thiobacillus

C. Bacillus subtilis

D. Nitrobacter

**Answer: D**



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**18.** On reaction with  $\alpha^+$  ketoglutaric acid, ammonia yields .....

A. Glutamate

B. Malate

C. Glutamine

D. Oxoglutarate

**Answer: A**



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**19.** Pyridoxal phosphate is a derivative of vitamin .....

A. *A*

B. *B*<sub>12</sub>

C. *B*<sub>6</sub>

D. *D*

**Answer: C**



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**20. Identify the correct pair.**

- |                      |   |                    |
|----------------------|---|--------------------|
| (i) <i>Cuscuta</i>   | — | Stem parasite      |
| (ii) <i>Viscum</i>   | — | Total parasite     |
| (iii) <i>Dionaea</i> | — | Saprophyte         |
| (iv) Lichen          | — | Fungi and bacteria |

A. (i) only

B. (ii) only

C. Both (i) and (ii)

D. Both (iii) and (iv)

**Answer: A**



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**21. Assertion :** Loranthus is a partial parasite.

**Reason :** Partial parasite depends on host for water& minerals only.

A. A is right, R is wrong

B. Both A and R are correct

C. A is right R, explains A

D. A is wrong R, explains A

**Answer: C**



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**22.** Pitcher plant is the common name for

..... .

A. Drosera

B. Nepenthes

C. Utricularia

D. Dionaea

**Answer: B**



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**23.** Insectivorous plants usually seen in .....  
deficient soil .

A. Sulphur

B. Nitrogen



C. Carbon

D. Potassium

**Answer: B**



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**24.** \_\_\_\_\_ are a pioneer species in xeric succession.

A. Lichens

B. Mycorrhizae

C. Cyanobacteria

D. Pteridophyte

**Answer: A**



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## Additional Questions Solved Very Short Answer Type Questions

1. Differentiate between Micronutrient and Macronutrient.



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**2. State the law of minimum .**



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**3. Mention any four unclassified minerals.**



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4. Potassium and Osmotic potential -  
Comment.



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5. In which form does the following minerals  
are absorbed by plants.

(a) Nitrogen (b) Magnesium (c ) Boron (d)  
Phosphorous



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6. Name any two calcium deficiency disease in plants.



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7. Nitrogen is a Macronutrient - Justify.



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8. What are siderophores ?



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9. Given below are the plant diseases, name the deficient mineral responsible for the disease.

(a) Khaira disease (b) Internal cork of apple

(c ) Die back of Citrus (d) Sand drown of tobacco



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10. Define calmodulin.



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**11.** When does an essential mineral is considered as a "toxic" ?



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**12.** Give a brief note on Aluminium toxicity.



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**13.** Define nitrogen fixation. Mention its types.



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**14.** How does nitrogen fixation occurs non-biologically ?



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**15.** Name the types of Autotrophic nutrition.



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**16.** What are obligate parasites ? Give example.



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**17.** What is a Lichen?



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**Additional Questions Solved Short Answer Type Questions**

1. List out the criteria for being as essential minerals.



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2. Mention the role of Sulphur in plants.



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3. Give a short note on EDTA.



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4. Write a brief note on Manganese toxicity.



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5. Write a note on Hydroponics and Aeroponics.



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6. Mention the three possible ways by which ammonia is converted into aminoacids during nitrogen metabolism.



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7. Write the equation for reductive amination.



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8. Transamination - Write a note.



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**9. Give an account on GOGAT - pathway.**



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**10. Write a note on Saprophytes.**



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**11. What is Mycorrhizae ?**



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## Additional Questions Solved Long Answer Type Questions

1. Write in detail about functions, mode of absorption and deficiency symptoms of any two macronutrients.



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2. Give in detail about the vitality of Boron and Zinc in plant nourishment.



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3. Explain in detail about the symbiotic nitrogen fixation with nodulation.



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4. Describe the various stages of nitrogen cycle.



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5. Explain the types of parasitic mode of nutrition in angiosperms.



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[Additional Questions](#) [Solved](#) [Higher Order Thinking Skills](#) [Hots](#)

1. In metrocities like Chennai, there is a lack of space for garden. Suggest a technique by



which plants can be grown without the need of soil and land space.



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## Additional Questions Solved Multiple Choice Questions

1. Carnivorous plants like *Nepenthes* and Venus fly trap have nutritional adaptation. Which nutrients do they especially obtain and from where?



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2. Excess of manganese in soil leads to deficiency of Mg, Fe and Ca. Justify.



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3. Name the crucial enzyme found in the root nodules of leguminous plants for nitrogen fixation. Also name the pigment which is highly essential for the activation of the enzyme.



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4. Plants require nutrients. If we supply these in excess will it be beneficial to plant if yes, how? If no, why?



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5. X is a primitive, eukaryotic chlorophyllous organism and Y is an eukaryotic, achlorophyllous organiser. Both X and Y lips

mutually together uh benefiting each other.

(a) name the mutual association.

(b) what X and Y are?

(c) explain their relationship?



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