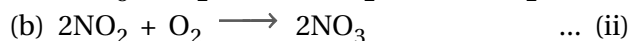
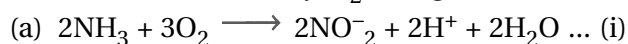


Section A

● Write the answer of the following questions. [Each carries 1 Mark] [20]

- 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.
- Deficiency symptoms of an element tend to appear first in young leaves. It indicates that the elements is relatively immobile. Which one of the following elemental deficiency would show such symptoms ?  
 (A) Sulphur (B) Magnesium (C) Nitrogen (D) Potassium

3. Reaction carried out by N<sub>2</sub> fixing microbes include.



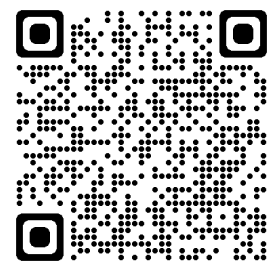
Which of the following statements about these equations is not true ?

- Step (i) is carried out by *Nitrosomonas* or *Nitrococcus*
  - Step (ii) is carried out by *Nitrobacter*
  - Both steps (i) and (ii) can be called nitrification
  - Bacteria carrying out these steps are usually photoautotrophs
4. Match the element with its associated functions/roles and choose the correct option among given below :

Column-I	Column-II
(a) Boron	(i) Splitting of H <sub>2</sub> O to liberate O <sub>2</sub> during photosynthesis
(b) Manganese	(ii) Needed for synthesis of auxins
(c) Molybdenum	(iii) Component of nitrogenase
(d) Zinc	(iv) Pollen germination
(e) Iron	(v) Component of ferredoxin

- (A) (a - i), (b - ii), (c - iii), (d - iv), (e - v) (B) (a - iv), (b - i), (c - iii), (d - ii), (e - v)
  - (C) (a - iii), (b - ii), (c - iv), (d - v), (e - i) (D) (a - ii), (b - iii), (c - v), (d - i), (e - iv)
5. Plants can be grown in (Tick the incorrect option)
- soil with essential nutrients. (B) water with essential nutrients.
  - either water or soil with essential nutrients. (D) water or soil without essential nutrients.
6. Roots of higher category plants, forms mycorrhiza with whom by symbiosis ?  
 (A) Virus (B) Fungi (C) Bacteria (D) Transaminase
7. Which enzyme is essential for the formation of nitrogen ?  
 (A) Nitrogenase (B) Nitrate reductase (C) Transferase (D) Trans aminase
8. Boron is present in green plants for  
 (A) Transport of sugar (B) For activation of enzymes  
 (C) As cofactor of enzymes (D) For photosynthesis

9. Why is manganese essential ?  
 (A) For the formation of cellwall (B) Photolysis of H<sub>2</sub>O during photosynthesis  
 (C) For the synthesis of chlorophyll (D) For the synthesis of nucleic acid
10. What is the function of leghaemoglobin in root nodules of leguminosae ?  
 (A) Inhibits activation of nitrogenase (B) Removes O<sub>2</sub>  
 (C) Differentiation of root nodules (D) nif gene is expressed
11. Hydroponics technique was developed by  
 (A) Julius Von Sachs (B) Priestly (C) Ingenhousz (D) Engelmann
12. In which two amino acids sulphur is present ?  
 (A) Cysteine (B) Methionine (C) Both (A) and (B) (D) Serine
13. Which of the following is the most essential elements ?  
 (A) N<sub>2</sub> (B) Mo (C) Zn (D) P
14. Yellowing of leaves due to  
 (A) Tyloses (B) Necrosis (C) Chlorosis (D) Flourosis
15. Is not associated with manganese  
 (A) activates many enzymes involved in photosynthesis  
 (B) splitting of water to release O<sub>2</sub> during photosynthesis  
 (C) pollen germination  
 (D) Both (A) and (B)
16. Molybdenum is a component of  
 (A) Nitrogenase (B) Nitrate oxygenase (C) Carboxylase (D) All of these
17. Mineral needed in synthesis of auxin  
 (A) Mo (B) Zn (C) Cu (D) Cl
18. The deficiency symptom of which element can be seen first in senescent leaves.  
 (A) K (B) Zn (C) Mo (D) Cu
19. Mg<sup>2+</sup> is a activator of which enzyme  
 (A) RuBisCO (B) Carbonic anhydrase (C) PEPcase (D) Both (A) and (C)
20. Which mineral competes with Fe ?  
 (A) Mn (B) Cu (C) Zn (D) Ca



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