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NEET MINERAL NUTRITION — PYQS

Max. Marks: 216 **Questions:** 54

Section A (MCQ) — 54 questions

Q.1 Which micronutrient is required for splitting of water molecule during photosynthesis? [NEET (UG) 2023]

(1) Molybdenum (2) Magnesium
(3) Copper (4) Manganese

Scan or tap for the full solution

Q.2 Match **List I** with **List II**: [NEET (UG) 2023]

List I		List II	
A.	Iron	I.	Synthesis of auxin
B.	Zinc	II.	Component of nitrate reductase
C.	Boron	III.	Activator of catalase
D.	Molybdenum	IV.	Cell elongation and differentiation

(1) A-II, B-III, C-IV, D-I (2) A-III, B-I, C-IV, D-II
(3) A-II, B-IV, C-I, D-III (4) A-III, B-II, C-I, D-IV

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Q.3 Match **List-I** with **List-II**

List - I		List - II	
a.	Manganese	i.	Activates the enzyme catalase
b.	Magnesium	ii.	Required for pollen germination
c.	Boron	iii.	Activates enzymes of respiration
d.	Iron	iv.	Functions in splitting of water during photosynthesis

Choose the correct answer from the options given below: [NEET (UG) 2022]

(1) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)
(2) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)
(3) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)
(4) (a)-(iii), (b)-(i), (c)-(ii), (d)-(iv)

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Q.4 Which one of the following produces nitrogen fixing nodules on the roots of *Alnus*? [NEET (UG) 2022]

(1) *Rhizobium* (2) *Frankia*
(3) *Rhodospirillum* (4) *Beijerinckia*

Scan or tap for the full solution

Q.5 Which of the following pair represents free living nitrogen fixing aerobic bacteria? [NEET (UG) 2022 (Phase 2)]

(1) *Pseudomonas* and *Thiobacillus*
(2) *Rhizobium* and *Frankia*
(3) *Azotobacter* and *Beijernickia*
(4) *Anabaena* and *Rhodospirillum*

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Q.6 Which of the following protects nitrogenase inside the root nodule of a leguminous plant? [NEET (UG) 2022 (Phase 2)]

(1) Glutamate dehydrogenase
(2) Catalase
(3) leg haemoglobin
(4) Transaminase

Scan or tap for the full solution

Q.7 Match **Column - I** with **Column - II**.

Column-I		Column-II	
a.	*Nitrococcus*	i.	Denitrification
b.	*Rhizobium*	ii.	Conversion of ammonia to nitrite
c.	*Thiobacillus*	iii.	Conversion of nitrite to nitrate
d.	*Nitrobacter*	iv.	Conversion of atmospheric nitrogen to ammonia

Choose the correct answer from options given below. [NEET (UG) 2021]

(1) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)
(2) (a)-(ii), (b)-(iv), (c)-(i), (d)-(iii)
(3) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)
(4) (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)

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Q.8 Match the following concerning essential elements and their functions in plants

List-I		List-II	
a.	Iron	i.	Photolysis of water
b.	Zinc	ii.	Pollen germination
c.	Boron	iii.	Required for chlorophyll biosynthesis
d.	Manganese	iv.	IAA biosynthesis

Select the correct option [NEET (UG) 2020]
(1) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)
(2) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)
(3) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)
(4) (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)

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Q.9 The product(s) of reaction catalyzed by nitrogenase in root nodules of leguminous plants is/are [NEET (UG) 2020]
(1) Ammonia alone
(2) Nitrate alone
(3) Ammonia and oxygen
(4) Ammonia and hydrogen

Scan or tap for the full solution

Q.10 *Thiobacillus* is a group of bacteria helpful in carrying out : [NEET (UG) 2019]
(1) Nitrification
(2) Denitrification
(3) Nitrogen fixation
(4) Chemoautotrophic fixation

Scan or tap for the full solution

Q.11 Which of the following elements is responsible for maintaining turgor in cells? [NEET 2018]
(1) Sodium (2) Calcium
(3) Magnesium (4) Potassium

Scan or tap for the full solution

Q.12 In which of the following forms is iron absorbed by plants? [NEET 2018]
(1) Ferrous (2) Both ferric and ferrous
(3) Ferric (4) Free element

Scan or tap for the full solution

Q.13 In which of the following all three are macronutrients? [NEET 2016 (Phase 1)]
(1) Molybdenum, magnesium, manganese
(2) Nitrogen, phosphorus, sulphur
(3) Boron, Zinc, manganese
(4) Iron, copper, molybdenum

Scan or tap for the full solution

Q.14 Which is essential for the growth of root tip? [NEET 2016 (Phase 2)]
(1) Zn (2) Fe (3) Ca (4) Mn

Scan or tap for the full solution

Q.15 The oxygen evolved during photosynthesis, comes from water molecules. Which one of the following pairs of elements is involved in this reaction? [AIPMT 2015]
(1) Magnesium and Molybdenum
(2) Magnesium and Chlorine
(3) Manganese and chlorine
(4) Manganese and Potassium

Scan or tap for the full solution

Q.16 During biological nitrogen fixation, inactivation of nitrogenase by oxygen poisoning is prevented by [AIPMT 2015]
(1) carotene (2) cytochrome
(3) leghaemoglobin (4) xanthophyll.

Scan or tap for the full solution

Q.17 Minerals known to be required in large amounts for plant growth include [AIPMT 2015 (Cancelled)]
(1) potassium, phosphorus, selenium, boron
(2) magnesium, sulphur, iron, zinc
(3) phosphorus, potassium, sulphur, calcium
(4) calcium, magnesium, manganese, copper.

Scan or tap for the full solution

Q.18 Deficiency symptoms of nitrogen and potassium are visible first in [AIPMT 2014]
(1) senescent leaves (2) young leaves
(3) roots (4) buds.

Scan or tap for the full solution

Q.19 The first stable product of fixation of atmospheric nitrogen in leguminous plants is [NEET 2013]

(1) NO_3^- (2) glutamate
(3) NO_2^- (4) ammonia.

Scan or tap for the full solution

Q.20 Which two distinct microbial processes are responsible for the release of fixed nitrogen as dinitrogen gas (N_2) to the atmosphere ? [NEET 2013 (Karnataka)]

(1) Anaerobic ammonium oxidation, and denitrification
(2) Aerobic nitrate oxidation, and nitrite reduction
(3) Enteric fermentation in cattle, and nitrogen fixation by Rhizobium in root nodules of legumes
(4) Decomposition of organic nitrogen, and conversion of dinitrogen to ammonium compounds

Scan or tap for the full solution

Q.21 Which of the following elements is a constituent of biotin? [NEET 2013 (Karnataka)]

(1) Magnesium (2) Calcium
(3) Phosphorus (4) Sulphur

Scan or tap for the full solution

Q.22 Which two distinct microbial processes are responsible for the release of fixed nitrogen as dinitrogen gas (N_2) to the atmosphere? [NEET 2013 (Karnataka)]

(1) Aerobic nitrate oxidation and nitrate reduction
(2) Decomposition of organic nitrogen and conversion of dinitrogen to ammonium compounds
(3) Enteric fermentation in cattle and nitrogen fixation by *Rhizobium* in root nodules of legumes
(4) Anaerobic ammonium oxidation and denitrification

Scan or tap for the full solution

Q.23 For its action, nitrogenase requires [AIPMT 2012 (Mains)]

(1) high input of energy (2) light
(3) Mn^{2+} (4) super oxygen radicals

Scan or tap for the full solution

Q.24 Which one of the following is wrong statement? [AIPMT 2012 (Prelims)]

(1) *Anabaena* and *Nostoc* are capable of fixing nitrogen in free-living state also.
(2) Root nodule forming nitrogen fixers live as aerobes under free-living conditions.
(3) Phosphorus is a constituent of cell membranes, certain nucleic acids and all proteins.
(4) *Nitrosomonas* and *Nitrobacter* are chemo-autotrophs.

Scan or tap for the full solution

Q.25 Best defined function of manganese in green plants is [AIPMT 2012 (Prelims)]

(1) photolysis of water (2) Calvin cycle
(3) nitrogen fixation (4) water absorption

Scan or tap for the full solution

Q.26 Which one of the following is correctly matched? [AIPMT 2012 (Prelims)]

(1) Passive transport of nutrients – ATP
(2) Apoplast – Plasmodesmata
(3) Potassium – Readily immobilisation
(4) Bakane of rice seedlings – F. Skoog

Scan or tap for the full solution

Q.27 Which one of the following is essential for photolysis of water? [AIPMT 2011 (Mains)]

(1) Copper (2) Manganese
(3) Boron (4) Zinc

Scan or tap for the full solution

Q.28 Which one of the following is not an essential mineral element for plants while the remaining three are? [AIPMT 2011 (Mains)]

(1) Iron (2) Manganese
(3) Cadmium (4) Phosphorus

Scan or tap for the full solution

Q.29 Which one of the following elements in plants is not remobilised? [AIPMT 2011 (Prelims)]

(1) Phosphorus (2) Calcium
(3) Potassium (4) Sulphur

Scan or tap for the full solution

Q.30 Nitrifying bacteria [AIPMT 2011 (Prelims)]

(1) oxidize ammonia to nitrates
(2) convert free nitrogen to nitrogen compounds
(3) convert proteins into ammonia
(4) reduce nitrates to free nitrogen

Scan or tap for the full solution

Q.31 The function of leghaemoglobin in the root nodules of legumes is [AIPMT 2011 (Prelims)]

(1) inhibition of nitrogenase activity
(2) oxygen removal
(3) nodule differentiation
(4) expression of *nif* gene

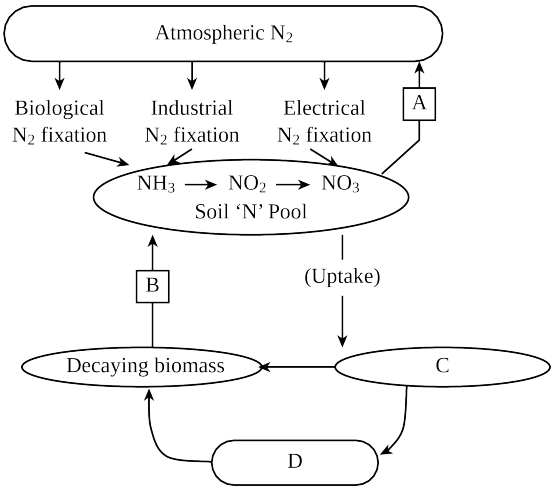
Scan or tap for the full solution

Q.32 Leguminous plants are able to fix atmospheric nitrogen through the process of symbiotic nitrogen fixation. Which one of the following statements is not correct during this process of nitrogen fixation? [AIPMT 2010 (Mains)]

(1) Leghaemoglobin scavenges oxygen and is pinkish in colour.
(2) Nodules act as sites for nitrogen fixation.
(3) The enzyme nitrogenase catalyses the conversion of atmospheric N_2 to NH_3.
(4) Nitrogenase is insensitive to oxygen.

Scan or tap for the full solution

Q.33 Study the cycle shown below and select the option which gives correct words for all the four blanks A, B, C and D. [AIPMT 2010 (Mains)]



(1)

A	B	C	D
Nitrification	Ammonification	Animals	Plants

(2)

A	B	C	D
Denitrification	Ammonification	Plants	Animals

(3)

A	B	C	D
Nitrification	Denitrification	Animals	Plants

(4)

A	B	C	D
Denitrification	Nitrification	Plants	Animals

Scan or tap for the full solution

Q.34 One of the free-living, anaerobic nitrogen-fixer is [AIPMT 2010 (Prelims)]

(1) *Beijerinckia* (2) *Rhodospirillum*
(3) *Rhizobium* (4) *Azotobacter*

Scan or tap for the full solution

Q.35 An element playing important role in nitrogen fixation is [AIPMT 2010 (Prelims)]

(1) molybdenum (2) copper
(3) manganese (4) zinc

Scan or tap for the full solution

Q.36 Which one of the following is not a micronutrient? [AIPMT 2010 (Prelims)]

(1) Molybdenum (2) Magnesium
(3) Zinc (4) Boron

Scan or tap for the full solution

Q.37 Manganese is required in [AIPMT 2009]

(1) plant cell wall formation
(2) photolysis of water during photosynthesis
(3) chlorophyll synthesis
(4) nucleic acid synthesis

Scan or tap for the full solution

Q.38 Nitrogen fixation in root nodules of *Alnus* is brought about by: [AIPMT 2008]

(1) *Bradyrhizobium* (2) *Frankia*
(3) *Clostridium* (4) *Azorhizobium*

Scan or tap for the full solution

Q.39 Which of the following is a flowering plant with nodules containing filamentous nitrogen-fixing micro-organism? [AIPMT 2007]

(1) *Crotalaria juncea* (2) *Cycas revoluta*
(3) *Cicer arietinum* (4) *Casuarina equisetifolia*

Scan or tap for the full solution

Q.40 Which one of the following elements is not an essential micronutrient for plant growth? [AIPMT 2007]

(1) Zn (2) Cu (3) Ca (4) Mn

Scan or tap for the full solution

Q.41 Plants take zinc in the form of [AIPMT 2000]

(1) $ZnSO_4$ (2) Zn^{2+} (3) ZnO (4) Zn

Scan or tap for the full solution

Q.42 A plant requires magnesium for [AIPMT 2007]
(1) protein synthesis
(2) chlorophyll synthesis
(3) cell wall development
(4) holding cells together

Scan or tap for the full solution

Q.43 Sulphur is an important nutrient for optimum growth and productivity in [AIPMT 2006]
(1) oilseed crops (2) pulse crops
(3) cereals (4) fibre crops.

Scan or tap for the full solution

Q.44 All of the following statements concerning the actinomycetous filamentous soil bacterium *Frankia* are correct except that *Frankia* [AIPMT 2005]
(1) can induce root nodules on many plant species
(2) can fix nitrogen in the free-living state
(3) forms specialized vesicles in which the nitrogenase is protected from oxygen by a chemical barrier involving triterpene hopanoids
(4) like *Rhizobium*, it usually infects its host plant through root hair deformation and stimulates cell proliferation in the host's cortex.

Scan or tap for the full solution

Q.45 The deficiencies of micronutrients, not only affect 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 most, both photosynthetic and mitochondrial electron transport? [AIPMT 2005]
(1) Co, Ni, Mo (2) Ca, K, Na
(3) Mn, Co, Ca (4) Cu, Mn, Fe

Scan or tap for the full solution

Q.46 If by radiation all nitrogenase enzymes are inactivated, then there will be no [AIPMT 2004]
(1) fixation of nitrogen in legumes
(2) fixation of atmospheric nitrogen
(3) conversion from nitrate to nitrite in legumes
(4) conversion from ammonium to nitrate in soil.

Scan or tap for the full solution

Q.47 Plants deficient of element zinc, show its effect on the biosynthesis of plant growth hormone [AIPMT 2003]
(1) auxin (2) cytokinin
(3) ethylene (4) abscisic acid.

Scan or tap for the full solution

Q.48 Gray spots of oat are caused by deficiency of [AIPMT 2003]
(1) Cu (2) Zn (3) Mn (4) Fe

Scan or tap for the full solution

Q.49 Boron in green plants assists in [AIPMT 2003]
(1) activation of enzymes
(2) acting as enzyme co-factor
(3) photosynthesis
(4) sugar transport

Scan or tap for the full solution

Q.50 Enzyme first used for nitrogen fixation [AIPMT 2001]
(1) nitrogenase (2) nitroreductase
(3) transferase (4) transaminase

Scan or tap for the full solution

Q.51 Passive absorption of minerals depends on [AIPMT 2001]
(1) temperature
(2) temperature and metabolic inhibitor
(3) metabolic inhibitor
(4) humidity

Scan or tap for the full solution

Q.52 Roots of which plant contain a red pigment which has affinity for oxygen? [AIPMT 2001]
(1) Carrot (2) Soybean (3) Mustard (4) Radish

Scan or tap for the full solution

Q.53 Mg is a component of [AIPMT 2000]
(1) chlorophyll (2) cytochrome
(3) haemoglobin (4) haemocyanin

Scan or tap for the full solution

Q.54 When the plants are grown in magnesium deficient but urea rich soil, the symptoms expressed are

[AIPMT 2000]

(1) yellowish leaves (2) colourless petiole

(3) dark green leaves (4) shoot apex dies

Scan or tap for the full solution

ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	**4**	**2**	**2**	**2**	**3**	**3**	**2**	**3**	**4**	**2**	**4**
Ques.	12	13	14	15	16	17	18	19	20	21	22
Ans.	**3**	**2**	**3**	**3**	**3**	**3**	**1**	**4**	**1**	**4**	**4**
Ques.	23	24	25	26	27	28	29	30	31	32	33
Ans.	**1**	**3**	**1**	**3**	**2**	**3**	**2**	**1**	**2**	**4**	**2**
Ques.	34	35	36	37	38	39	40	41	42	43	44
Ans.	**2**	**1**	**2**	**2**	**2**	**4**	**3**	**2**	**2**	**1**	**2**
Ques.	45	46	47	48	49	50	51	52	53	54	
Ans.	**4**	**1**	**1**	**3**	**4**	**1**	**1**	**2**	**1**	**1**	