WATER ABSORPTIO EXERCISE

1. Which of the following statement is not correct ?
   (1) Plants absorb excess quantity of water
   (2) Plants take small quantity of mineral salts through soil water
   (3) Water and inorganic salts may also simultaneously by root hair
   (4) Plant absorb only one thing at a time water or inorganic salts

2. Which of the following is a rapid type of absorption ?
   (1) Passive absorption
   (2) Active absorption
   (3) Salt absorption
   (4) Root absorption

3. The form of water absorbed by plant's root system. From the soil is :-
   (1) Hygroscopic water
   (2) Gravitational water
   (3) Capillary water
   (4) All of these

4. The pathway of water from soil upto the secondary xylem :-
   (1) Soil $\rightarrow$ root hari $\rightarrow$ cortex $\rightarrow$ endodermis $\rightarrow$ percycle $\rightarrow$ protoxylem $\rightarrow$ Meta xylem
   (2) Metxylem $\rightarrow$ protoxylem $\rightarrow$ pericycle $\rightarrow$ cortex $\rightarrow$ endodermis $\rightarrow$ soil $\rightarrow$ root hair
   (3) Cortex $\rightarrow$ root hair $\rightarrow$ endodermis $\rightarrow$ pericycle $\rightarrow$ protoxylem $\rightarrow$ metaxylem
   (4) Pericycle $\rightarrow$ soil $\rightarrow$ root hair $\rightarrow$ cortex $\rightarrow$ endodermis $\rightarrow$ protoxylem $\rightarrow$ metaxylem

5. Humus in soil is necessary for plant growth because it :-
   (1) Increases aeration and water absorption capacity of soil
   (2) Makes soil compact
   (3) Makes soil sterile
   (4) Decreases rate of percolation

6. Water will be absorbed by root hairs when :-
   (1) Concentration of salts in the soil high
   (2) Concentration of solutes in the cell sap is high
   (3) The plant is rapidly
   (4) They are separated from the soil by a semipermeable membrane

7. Water in plants is transported by ascent of sap takes place through :-
   (1) Cambium (2) Phloem
   (3) Xylem (4) Epidermis

8. In poorly soil , the rate of water absorption will :-
   (1) Increase (2) Decrease
   (3) Remains the same (4) None of these

9. Which of the following water comes under echards ?
   (1) Available to the plant
   (2) Whole of the soil water
   (3) Amount of water not available to the plant
   (4) None of the above

10. which plant hormone help in active absorption of water ?
   (1) Auxin (2) GA
   (3) Cytokinin (4) ABA

11. What is true for the water available in the soil ?
   (1) Holard = chresard +Echard
   (2) Holard = Chresard -Echard
   (3) Chresard= Holard +Echard
   (4) Echard =Holard +chresard

12. Passive absorption ot water takes place by :-
   (1) Osmosis
   (2) The presence of energy
   (3) Root pressure
   (4) Transpiration pull

13. Root hairs occurs in :-
   (1) Meristematic zone
   (2) Cell elongation zone
   (3) Cell maturation zone
   (4) Old root

14. All the following involves osmosis except :-
   (1) Movement of water from soil to root
   (2) Movement of water from root hair to endodermis and pericycle
   (3) Movement of water between xylem elements
   (4) Movement of water from xylem to mesophyll cells of the leaves

15. Suitable temperature for active absorption of water by root is :-
   (1) 40-45^{0}C
   (2) 10-15^{0}C
   (3) 20-35^{0}C

(4) Can take at any temperature

16. "Osmotic theory" for an active absorption of water was given by :-
(1) Thiman (2) O.Hertwig
(3) Atkin & Priestley (4) J.C.Bose

17. Root cap plays no role in the absorption of water in a plant because :-
(1) Its cells are loosly arranged
(2) It has no root hairs
(3) It has no connection with xylem tissue
(4) It cells are dead

18. Energy dependent absorption of water against osmotic phenomenon is :-
(1) Active absorption
(2) Passive absorption
(3) Imbibition
(4) Bulk absorption

19. In a young root the most active absorption of water takes place through :_
(1) Root cap region
(2) Root hair region
(3) Zone of elongation
(4) Mature region with a corky layer

20. Water is actively absorbed by root when :-
(1) Soil solution is hypotonic
(2) Soil solution is hypertonic
(3) Transpiration rates are high
(4) Shoot pressure is high

21. Maximum absorption of water by a root occur in the region of :-
(1) Cell division
(2) Cell elongation
(3) Cell maturation
(4) Cell division and rood cap together

22. Absorption of water is increased when :-
(1) Transpiration is increased
(2) Photosynthesis is increased
(3) Respiration is increased
(4) Rood pressure is increased

23. Passive absorption of water from the soil by the root is mainly effected by :-
(1) Typical tissue organisation
(2) Respiratory activity of root
(3) Tension on cell sap due to transpiration
(4) None of the above

24. Active absorption of water from the soil by the root is mainly effected by :-
(1) Typical tissue organisation
(2) Respiratory activity of root
(3) Tension on cell sap due to transpiration
(4) None of the above

25. The water held tightly by the soil particles around them is known as :-
(1) Field capacity
(2) Run away water
(3) Hygroscopic water
(4) Capillary water

26. Percentage of water left in the soil when a plant begins to wilt is known as :-
(1) Wilting coefficient
(2) pH value of soil
(3) Field capacity
(4) Water holding capacity

27. Which of the following factors inhibit the absorption of water by roots?
(1) Low soil temperature
(2) High concentration of soil solution
(3) Low soil aeration
(4) All of the above

28. Which of the plants can absorb water in the form of vapour from its atmosphere ?
(1) All xerophytes
(2) Low transpiring cacti
(3) Succulents plants
(4) Epiphytes & Lichen

29. "Non –osmotic " theory for an active absorption of water was given by :-
(1) Thimann & Bennet clark
(2) Atkin & Priestley
(3) J.C.Bose
(4) O.Hertig

30 When the temperature of soil becomes 1^0 C then ?
(1) Absorption of water increases
(2) Absorption of water decrease
(3) Absorption of water remains unaffected
(4) Both (2) and (3) are correct

31. When the concentration of the soil solutes is low, the absorption of water is ?
(1) Retarded (2) Increase
(3) Remains normal (4) Stopped

32. Which type of plant are physiologically dry ?
(1) Hjydrophtes (2) Epiphytes
(3) Lithophtes (4) Halohytes

33. Which method is responsible for most of the absorption in higher plants ?
(1) Active absorption
(2) Passive absorption
(3) Osmotic absorption
(4) Non osmotic absorption

34. The absorption of waterdue to expenditure of energy is called :-
(1) Non osmatic absorption
(2) Oamotic active absorption
(3) Paddive aborption
(4) All

35. Halophytes can grow on physiologically dry due to –
(1) Dry soil
(2) Excessive humidity outside
(3) Excessive salts in plants
(4) Excessive salts in water

ASCENT OF SAP

36. Water rises in the stem due to :-
(1) Cohesion and transpiration
(2) Turgor pressure
(3) Osmotic pressure
(4) None

37. Sap ascends in woody stem because of :-
(1) Trnspirtion pull
(2) Capillarity
(3) Moleculra adhesion
(4) Photsynthesis

38. Pulsation theory to explain ascent of sap in Desmodium was proposed by :-
(1) Dixxon and Jolly
(2) Curits
(3) J.C.Bose
(4) None of these

39. Dixon and Jolly are associated with :-
(1) Light reaction and photosynthesis
(2) An areobic respiration
(3) Cohesion and transpiration pull theory of ascnt of sap
(4) Apical dominace

40. The continuity of water column in xylem is maintained due to :-
(1) Presence of air bubbles
(2) Cohesive property of water
(3) Evaporation power of water
(4) None of the above

41. Relay pump theory of ascent of sap was proposed by :-
(1) Bose (2) Godlewsky
(3) Westermaier (4) Von sachs

42. The first vital theory to explain ascent of sap was proposed by :-
(1) J.C.Bose (2) Godlewski
(3) Westermaire (4) Dixon and Jolly

43. Capillary force theory to explain ascent of sap was proposed by :-
(1) Boehm (2) Sachs
(3) Jamin (4) Priestlay

44. Ringing experiment to explain ascent of sap path was firstly done by :-
(1) Hartig ,Malpighi
(2) Dixon & Jolly
(3) Godlewski & J.C.Bose
(4) Stephen hales and Boehm

45. Passage of ascent of sap is shown by :-
(1) Osmometer
(2) Porometer
(3) Monometer
(4) Blockage experiment

46. Transpiration – cohesion –tension theory operates in :-
(1) Active absorption
(2) Passive absorption
(3) Active & passive absorption
(4) None of the above

47. Attractive forces of cell walls for water molecules is termed as :-
The imbibition theory for the ascent of sap was suggested by :-
(1) Adhesion (2) Cohesion
(3) Osmosis (4) Plamoylysis

48. The imbibition theory for the ascent of sap was suggested by :-
(1) Sir J.C.Bose (2) Strassburger
(3) Sachs (4) Dixon and Jolly

49. If all the tissue of a plant to certain points are removed except the xylem which is left intact :-
(1) The leaves will wilt
(2) The stem will die first
(3) The roots will die first
(4) The whole plant will die at the same time

50. Which of the following is incorrect match?
(1) Pulsation theory – J.C.Bose
(2) Relay pump theory -Godlewsky
(3) Imbibition theory –Von Sachs
(4) Capillary theory -Priestley

51. Which tissue are removed when a plant is girdled?
(1) Xylem & pith
(2) Xylem & phloem
(3) Phloem to epidermis
(4) Phloem to pith

52. Removal of a ring of bark from the trunk of a tree eventually kills it because:-
(1) Water can not go up
(2) Fungi & insects attack exposed parts
(3) Food does not travel down & root becomes starved
(4) Air blocks the xylem

53. Which would do maximum harm to a tree?
(1) The loss of half of its leaves
(2) The loss of all of its leaves
(3) The loss of half of its branches
(4) The loss of its bark

54. Ringing experiment can not be done on a sugar cane plant because:-
(1) Its xylem is scanty
(2) Its phloem is with out phloem parenchyma
(3) Its vascular bundles are scattered
(4) Its phloem is present inside the xylem

55. In plants the translocation of organic solutes takes place through:-
(1) Epidermis (2) Xylem
(3) Phloem (4) Pith

56. Most accepted theory for Ascent of sap given by:-
(1) Godlewski & Sacks
(2) J.C.Bose
(3) Stephan Hales
(4) Dixon and Jolly

57. Ringing experiment is to show:-
(1) Path of sacent of sap
(2) Comparision of transpiration
(3) Passive absorption
(4) Stomatal opening & closing

58. The conduction of water from root hair to root xylem is:-
(1) Symplastic
(2) Apoplastic
(3) Osmotically
(4) Symplasti + Apoplastic

59. Dixons blockage experiment is concerned with:-
(1) Transpiration
(2) Passive absorption
(3) Path of ascent of sap
(4) Vital theory for ascent of sap

60. The pulsation theory is related with:-
(1) Guttation
(2) Bleeding
(3) Vital theory for ascent of sap
(4) Physical theory for ascent of sap

61. Root pressure theory was proposed by:-
(1) Priestley
(2) Stephen Hales
(3) Levitt
(4) Sachs

62. By which porcess absorbed water reaches up to the leaves?
(1) Transpiration (2) Guttation
(3) Root pressure (4) Ascent of sap

63. Ringing experiment was performed in:-
(1) Balsom Plant
(2) Mirabilis Plant
(3) Indian telegraph
(4) Avena pant

TRANSPIRATION

64. Opening os stomata is due to:-
(1) Turgidity of guard cells
(2) Size of guard cells
(3) Number of guard cells
(4) Amount of CO_2 in the atmosphere

65. Transpiration in plants will be lowest when:-
(1) There is high humidity in the atmosphere
(2) High wind velocity
(3) There is excess of water in the soil
(4) Environmental conditions are very dry

66. The metal ion involved in the stomatal regulation is
(1) Iron (2) Magnesium
(3) Zinc (4) Potassium

67. The following percentage of water absorbed by herbaceous plants is lost in transpiration:-
(1) 80% (2) 60%
(3) 40% (4) 99%

68. Transpiration from plants would be most rapid when
(1) There is lot of humidity in atmosphere
(2) The air is more humid
(3) There is excess rain fall
(4) Environmental conditions are dry

69. Processes occur in leaves, which may lower their temperature is:-
(1) Respiration (2) Photosynthesis
(3) Hydrolysis (4) Transpiration

70. Wilting of a plant result from excessive:-
(1) Water molecules enter adjacent guard cells
(2) Atmosphere outside stomata become less humid
(3) Auxins are accumulated in guard cells
(4) Salt molecules are excreted by adjacent guared cells

71. Wilting of a plant result from excessive:-
(1) Respiration (2) Photosynthesis
(3) Absorption (4) Transpiration

72. The rate of transpiration is high when:-
(1) The atmosphere is saturated with water vapour
(2) Light is very dim
(3) The temperature is low
(4) The atmosphere is dry and the temperature is high

73. Excessive loss of water causes wilting of leaves , it can be prevented by :-
(1) Keeping the plant in bright light
(2) Spraying the plant with alcohol
(3) Applying vaseline on the leaf surface
(4) Adding high amounts of fertilizers to the soil

74. Leaves which appear wilted in the day time recover at night because :-
(1) Light is essential for photo synthesis
(2) The stomata close down , temperature decrease, transpiration is reduced and the plant is able to absorb more form the soil
(3) Respiration and translocation of organic substance both increases
(4) The plant is sleeping because of dark conditions

75. Conversion of starch to organic acid is essential for
(1) Stomatal closure (2) Stomatal opening
(3) Stomatal initiation (4) Stomata growth

76. Increase in CO_2 concentration around leaf results in :-
(1) Rapid opening of stomata
(2) Partial closure of stomata
(3) Complete closure of stomata
(4) No effect on stomatal opening

77. Which of the following wall of guard cells is thick ?
(1) Outer (2) Inner
(3) Sidewall (4) All the three

78. Photometer and Clinostat are uses to study :-
(1) Photosynthesis and respiration
(2) Transpiration and growth
(3) Phototropism and Geotropism
(4) Transpiration and Geotropism

79. The rate of transpiration will be high when there is ?
(1) Rainy season (2) Winter season
(3) Summer season (4) None of these

80. Which type of transpiration is more commen –
(1) Cuticular (2) Stomatal
(3) Lenticular (4) Bark transpiration

81. Maximum transpiration is taking place through the
(1) Stomata (2) Lenticel
(3) Hydathode (4) Cuticle

82. The inter conversion of sugar & starch is dependent on pH changes in the guard cells ; was demonstrated by :-
(1) Levitt (2) Lloyd
(3) Sayre (4) Steward

83. The spray of PMA causes :-
(1) Decrease in transpiration
(2) Increase in transpiration
(3) Increase in absorption
(4) Increase in guttation

84. When the stomate are opening ; we observe following changes in the guard cells ?
(1) OP increase, TP decreases
(2) OP & TP increases
(3) OP decreases, TP increases
(4) OP& TP decreases

85. The pH in the guard cells was observed when stomata were open it ranges :-
(1) 9-10 (2) 4-5
(3) 7.5 (4) 2-4

86. What will be the effects on stomata , if relative humidity is 100 % in atmosphere ?
(1) Completely open (2)Partially open.
(3) No effects (4) Cloded

87. Which of the following is produced during water stress condition ?
(1) Cytoknin (2) ABA
(3) Phytochrome (4) ATPase

88. Which chemical is used to detect transpiration comparatively ?
(1) Calcium carbonate (2) Cobalt carbonate
(3) Coobalt chloride (4) Mercuric acetate

89. Active K^+ ion exchange mechanism of opening and closing of stomata was given by :-
(1) Khorana (2) Scrath
(3) Levitt (4) Kohli

90. Cuticular transpiration is observed mainly in :-
(1) Xeropytes (2) Herbaceous plants
(3) Trees (4) Shrubs

91. What is action spectrum of transpiration ?
(1) Green and U.V (2) Blue and Yellow
(3) Blue and far red (4) Blue and red

92. In which of the following plants , the metabolism will be hindered if upper surace of leaves are coated with wax ?
(1) Hydrlla (2) Nrlumbium
(3) Vallisneria (4) Utuicularia

93. Which of the folowing substance sere as an anti-transpirant in plant ?
(1) Phenyl mercuric acetate
(2) Asprin
(3) Silcon oil
(4) All of these

94. Which of the factor acts as anti- transpirant?
(1) SO_2 (2) CO
(3) CO_2 (4) All pollutant gasses

95. Transpiration is a non- enzymatic its Q_{10}value is ;-
(1) 1 (2) 2
(3) 3.5 (4) Zero

96. The most important factor affecting transpiration is
(1) Light (2) Temperature
(3) Wind (4) Atmospheric humidity

97. Presence of thick cuticle, hairs , scales & fewer sunken stomata are found in the leaces of xerophyte it is to :-
(1) Stop transpiration
(2) Facilitate transpiration
(3) Store water
(4) Check excessive transpiration

98. Which factor regulates the loss of water through transpiration:-
(1) Nitrogen (2) Humidity
(3) Level of O_2 in air (4) Xylem

99. With increase in temperature the rate of transpiration becomes:-
(1) Low
(2) High
(3) Low in herbs and high in tress
(4) Immediately stopped

100. Which of the following plant do not transpire ?
(1) Algae
(2) Fungi
(3) Submerged hydrophyes
(4) All the above

101. Wilting of plant results from an excessive :-
(1) Absorption
(2) Photosynthesis & poor osmosis
(3) Respiration
(4) Transpiration

102. Transpiration is completely absent in :-
(1) Xerophytes
(2) Mesophytes
(3) Submerged hydrophytes
(4) Succulents at night

103. Who stated " Transpiration to be and unavoidable evil" ?
(1) Blackman (2) Stewaed
(3) Priestley (4) Curitis

104 Which pigment regulates opening and closing of stomata ?
(1) Chlorophylls (2) Carotenoids
(3) Plytochrome (4) Flavines

105. Which photoreceptor control the opening & closing of stomata ?
(1) Chlorophyll-a (2) Chlorophyll-b
(3) Phytochrome (4) Carotene

106. For plants transpiration is :-
(1) Not very important
(2) Important to same
(3) A necessary evil
(4) An important burden

107. Significance of transpiration lies in :-
(1) Circulation of water
(2) Absorption and distribution of water
(3) Regulating the temperature of the plant body
(4) All of the above

108. In apple type of stomata :-
(1) Stomata are present only on the upper surface of leaf
(2) Stomata are present only on the lower surface of leaf
(3) Stomata are present on both surfaces of leaf
(4) Stomata are vestigeal

109. Which of the following plant product act as an internal anti – transpirant ?
(1) Phenyl mercuric acetate
(2) CO_2 and malic acid
(3) Abscisic acid
(4) Ferulic acid

110. In the mechanism of opening of stomata, the important factor is :-
(1) Turgidity of the guard cells
(2) Chlorophyll content of the guaed cells
(3) Hormone content of the subsidiary cells
(4) Protein content of the epidermal cells

111. Stomata open at day because in day the guard cells have :-
(1) To help gas exchange
(2) A low pH
(3) Ahigh level of sugar , organic acid ATP & K^+ ion
(4) Unequally thickened walls

112. Basis of stomatal opening is :-
(1) Exosmsis
(2) Endosmosis
(3) Decrease in cell sap concentration
(4) Plsdmolysis of guard cells

113. Gjuard cells are found in :-
(1) Stomata (2) Hydathodes
(3) Both (4) None of the above

114. Shape of guard cells in gramineae family :-
(1) Kidney shaped (2) Oval
(3) Round (4) Dumbel shaped

115. Scotoactive stomata are occurs in :-
(1) Sacculent xerophytes
(2) Hydrophytes
(3) Mesophytes
(4) None of the above

116. With decrease in atmospheric pressure the rate of transpiration will :-
(1) Remain unaffected (2) Increased
(3) Decrease slowly (4) Decrease rapidly

117. Which of the following statement is not true ?
(1) Transpiration is increased when root shoot ratio in increased
(2) Transpiration is increased when latex & mucilage is increased in tissue
(3) Transpiration is decreased when stomata are sunken
(4) Transpiration is decreased when leaves becomes leathery or hairy

118. Which one of the following will reduce the rate of transpiration ?
(1) Increase in wind velocity
(2) Rise in temperature
(3) Increase in water uptake by plants
(4) Decrease in light intensity

119. The most important function of transpiration in plants is to cause :-
(1) Loss of surplus water
(2) Cooling of the plant
(3) Rapid ascent of sap
(4) Rapid rise of minerals

120. Which of the following plants economises transpiration loss off water ?
(1) C_3- plants
(2) C_4- plants
(3) Both equally
(4) C_2-plants

121. The change in turgor pressure which causes the opening and closing of Stomata in caused by :-
(1) Reversible starch –sugar conversions
(2) Reversible absorption and loss of K-ions
(3) Loss of chloride ions
(4) None of these

122. The " proton transport concept " for the opening of photoactive stomata was given by :-
(1) Yin tung (2) Levitt
(3) Sachs (4) Sayre

123. According to Scarth the opening & closing of stomata is governed by ;-
(1) pH
(2) Phosphorylation
(3) $NaDPH_2$
(4) Enzymes

124. Before opening of stomata accumulation of the following ion is seen in :-
(1) PO_4 (2) K^+
(3) Mg++ (4) Na^+

125. In succulent plants the stomata opens at night ad closes by day . Which of following would be best hypothesis to explain the mechanism of stomata opening at night only ?
(1) CO_2 used up. Increased pH results in accumulation of sugars
(2) CO_2 accumulates, reduces pH stimulates enzymes resulting in accumulation of carbohydrate
(3) Increase in CO_2 concentration, conversion of organic acids in to starch resulting in the increased uptake of potassium ions and water
(4) High CO_2 concentration causes accumulation of organic acids in guard cells resulting to the increased concentration of cell sap

126. Guard cells differ from other epidermal cells in having :-
(1) Large vacuoles
(2) Secondary walls
(3) Chloroplast with PEP- carboxylase enzyme
(4) Absence of mitochondria

127. The trunk of a tree shrinks in day due to :-
(1) Rapid translocation of food
(2) Transpiration induced tension
(3) Rapid growth in day hours
(4) Light induced elongation of plant

128. Apparatus used for measuring the transpiration :[RPMT -2002]
(1) Evapometer (2) Potomerer
(3) Osmometer (4) Tensiometer

129. Transpiration occures from :-
(1) Leaves (2) Stems
(3) All parts (4) All aerial parts

130. Leaves of submerged hydrophytes are :-
(1) Epistomatic
(2) Hypostomatic
(3) Aatomatic
(4) Above 1 & 2

131. The diffusion of water vapours through aerial parts of the plants is calls :-
(1) Osmosis (2) DPD
(3) Transpiration (4) All

132. If the absorption is more , but transpiration is less , then process affected will be :-
(1) Root pressure
(2) Guttation
(3) Bleeding
(4) All

133. Active $K^+ \rightleftarrows H^+$ exchange theory explained –
(1) Ascent of sap
(2) phloem conduction
(3) Ion abskorption
(4) Stomatal movement

134. Transpiration is a necessary evil, given by –
(1) Levit (2) Curtis
(3) Steward (4) Sachs

135. Which o f the following theory gives the latest explanation for closure of stomata ? [BHU 2002]
(1) ABA theory
(2) Munch theory
(3) Starch- glucose theory
(4) Active K^+ transport theory

136. Potassium ions concentration is more in guard cells when stomata are open but less when stomata are closed . This was repoted by :-
(1) Hsio, Fisher (2) Fujino
(3) Levitt (4) Lloyd

137. The loss of water in the form of water drops is taking place through the :-
(1) Hydathodes (2) Lenticel
(3) Stomata (4) All

138. The photometer is based on the principle that :-
(1) Transpiration is based on stomatal opening
(2) Stomata open during day time
(3) Absorption – Transpiration
(4) Transpiration tension present in leaves

139. Guttation is dependent on :-
(1) Root pressure
(2) Active absorption
(3) Flaccidity of root critical cells
(4) High rate of transpiration

140. Due to increasing temperature , transpiration:-
(1) Increases
(2) Decreases
(3) First increases then decreases
(4) Unaffected

141. If temperature remains constant then with increasing altitude , the transpiration will :-
(1) Increases
(2) Decreases
(3) First increases then decreases
(4) Unaffected

142. The conversion of starch to organic acid is essential for stomatal :-
(1) Closure
(2) Growth
(3) Initiation
(4) Opening

143. Transpiration increases when atmospheric temperature rises , due to :-
(1) Wider opening of stomata
(2) Stomatal opening becomes narrow
(3) Water holding capacity of the air narrow
(4) More photosynthesis in guard cells

144. The names of Yin & Tung are associated with findings of :-
(1) Phoshorylase enzyme
(2) Sugar –starch conversion
(3) Localization of phosphorylase enzyme in guard cells
(4) Exchange of K^+ & H^+

145. Due to more wind velocity, the transpiration rate will be :-
(1) Less
(2) More
(3) Unaffected
(4) First increases then decrease

146. Foliar transpiration :-
(1) Includes stomatal and cuticular transpiration
(2) Does not occur
(3) Includes all type of transpiration
(4) Shows stomatal transpiration

147. Radial micellation of cellulose occurs at :-
(1) Outer wall of guard cells
(2) Inner wall of guaed cells
(3) Inner wall of subsidiary cells
(4) None of the above

148. The Sugarcane plant has :-[AIIMA-2004]
(1) Dumb-bell shaped guard cells
(2) Pentamerous flowers
(3) Reticulate venation
(4) Capsular fruits

GUTTATION, BLEEDING , ROOT PRESSURE, WILTING

149. Root pressure is maximum , when :-
(1) Transpiration is high and absorption is very low
(2) Transpiration is very low and absorption is high
(3) Absorption is very high and transpiration is also very high
(4) Absorption is low and transpiration is also very low

150. Wilting in plant occurs when :-
(1) Xylem is blocked
(2) Epidermis is pealed off
(3) Pith is removed
(4) Phloem is blocked

151. Pressure exerted on the fluid contents of the cortical cells of root by turgidity . Which forces the water in to xylem vessels and upward in to the stem for a certain height is :-
(1) Imbibition
(2) Root pressure
(3)Capillarity
(4) Turgor pressure

152. The process of the escape of liquid from the tip of uninjured leaf is called :-
(1) Evaporation
(2) Transpiration
(3) Guttation
(4) Evapo-transpration

153. Guttation take place during night when :-
(1) Root pressure is positive
(2) Root pressure is negative
(3) Always take place
(4) It does not takes place at all

154. The hydathodes are related with :-
(1) Transpiration (2) Guttation
(3) Bleeding (4) All

155. Who discovered the rood pressure :-
(1) Stephen hales (2) Priestley
(3) Dixon (4) Renner

156. Root pressure can be measured by the instrument
(1) Photometer (2) Auxenometer
(3) Manometer (4) Barometer

157. In summer afternoon , rate of transpiration is than the rate of absorption then what happens to plant :-
(1) Temporary wilting
(2) No effect
(3) Leaves becomes yellow
(4) Plant will die

158. Which conditions favours “Guttation “ ?
(1) High water absorption
(2) High transpiration
(3) Low transpiration
(4) 1and 3 both

159. When stem of a herbaceous plant is cut , water or sap oozes out , this is due to ?
(1) Guttation
(2) Transpiration pull
(3) Root pressure
(4) Imbibition

160. Maximum bleeding occurs in ;-
(1) Agave (2) Vitis
(3) Betula (4) Caryota urens

161. Guttation usually occurs in a well watered herbaceous plant and well drained soil only in :-
(1) Morning hours (2) Evening hours
(3) None hours (4) Day hours

162. Hydathodes open during :-
(1) Height hours (2) Day hours
(3) Noon hours (4) Always open

163. The “Guttation “ word was given by :-
(1) Bergerstein (2) Sayer
(3) Scarth (4) Stephen hales

164. Which of the following is not a rhythnic phenomenon ?
(1) Stomatal opening & closing
(2) Guttation
(3) Nyctinasty
(4) Photonastic movements

165. Water of guttation is :-
(1) Pure water
(2) Water with dissolved salts
(3) Solution of organic food
(4) Condensed water vapour

166. Cells present on hydathodes is –
(1) Complementary cells
(2) Epithem cells
(3) Guard cells
(4) Kranz cells

167. The process involved in the formation of Toddy is :-
(1) Guttation (2) Transpiration
(3) Bleeding (4) All

168. The whitish powder around hydathode is due to :-
(1) Guttation
(2) Salt deposition from air
(3) Salt formation over surface
(4) Bleeding

MINERAL ABSORPTION & NUTRITION

169. Which of the group of elements is not essential for a normal plant ?
(1) K,Ca.Mg
(2) Fe,Zn,Mn,B
(3) Pb,I, Na
(4) Mg,Fe,Mo

170. Hydroponics is a technique in which plants are grown in ?
(1) Green house
(2) Water saturated sand
(3) Balanced nutriednt solution
(4) Purified distilles water

171. For chlorophyll formation a plant needs :-
(1) Fe, Ca & light (2) Fe, Mg& Light
(3) a, K & light (4) Mn & Cu

172. Brown heart rot of beet is due to deficiency of -
(1) B (2) P
(3) Mg (4) Mo

173. Die back disease in citrus is due to deficiency of :-
(1) Mo (2) B
(3)Cu (4) Zn

174. The disease relate with deficiency of molybdenum is :-
(1) Whiptail disease of cauliflower
(2) Little leaf disease
(3) Reclamation disease of cereals
(4) Brown heart disease

175. Protoplasmic elements are :-
(1) C,H,O,P,N,S (2) C,H,O,Fe,N
(3) N,S,Fe,P,K (4) Fe,Mg,Ca,N,P

176. Which element is not considered as macronutrient ?
(1) Mg (2) Ca
(3) Mn (4) P

177. The element which can not be placed along with micronutrients:-
(1) Mn (2) Mo
(3) Cu (4) Ca

178. The amino acid having S in its composition is –
(1) Cystine (2) Cysteine
(3) Methionie (4) All

179. Which Ca&K elements are considered as balancing elements ?
(1) Ca&K (2) C&H
(3) N&S (4) Mgand Fe

180. The group of mineral nutrients known as frame work elements :-
(1) N,S,P, (2) C,H,O
(3) Mg,Fe,Zn (4) Zn,Mn,Cu

181. Which element essential for stability of chromosome structure ?
(1) Zn (2) Ca
(3) Mo (4)Fe

182. “Reclamation “ and “Little leaf” disease, caused by deficiency of –
(1) Zn and Mo (2) Cu and Zu
(3) Cu and B (4) Mu and Cu

183. Which element is required in comparatively least quantity for the growth of plant ?
(1) Zn (2) N
(3) (4) Ca

184. Which of the following essential element is not properly placed in the given category ?
(1) Cu (2) Zn
(3) Mg (4) Mn

185. Criteria for essentiality in mineral nutrition were shown firstly by :-
(1) Arnon (2) Liebig
(3) Steward (4) Levitt

186. Which mineral nutrients are called critical element for crops ?
(1) N,P,K (2) C,H,O
(3) N,S,Mg (4) K. Ca, Fe

187. The mineral nutrient mainly concerning with apical meristematic activity is :-
(1) K (2) Ca
(3) N (4) S

188. Little leaf disease is caused by –
(1) Zn –deficiency (2) Cu - deficiency
(3) Mo-deficiency (4) Mn -deficiency

189. Which of the following does NPK denote ?
(1) Nitrogen, Potassium, Kinetin
(2) Nitrogen, Protein, Kinetin
(3) Nitrogen, Protein, Potassium
(4) Nitrogen, Phosphorus, Potassium

190. Plants absorb mineral salts from the soil solution through :-
(1) A semipermeable membrane into the cytoplasm
(2) Perforations at the apex of root hair cells
(3) The cell wall which is semipermeable
(4) None of these

191. Mineral salts which are absorbed by the root from the soil are in the for of :-
(1)Very dilute solution
(2) Dilute solution
(3) Concentrated solution
(4) Very concentrated solution

192. By which method ions are absorbed by the plants ?
(1) Diffusion (2) DPD gradient
(3) Carriers proteins (4) Water potential

193. Hydrodhytes absorb salt and water by :-
1) Root and root hairs
(2) Leaves and roots
(3) Roots and stem
(4) General epidermis

194. Active and passive absorption terms were coined by :-
(1) Kramer (2) Deutrochet
(3) Priestley (4) Renner

195. Which is free ion present in a cell ?
(1) P (2)K
(3)Fe (4) B

196. Who give the cytochrome pume theory ?
(1) Sachs
(2) Lundegardh
(3) Bose & Renner
(4) Bennet - Clark

197. Who proposed the protein lecithin theory ?
(1) Sachs
(2) Lundegardh
(3) Bose & Rennr
(4) Bennet & Clark

198. Carrier protein helped in :-
(1) Active absorption of ions
(2) Passive ions absorption
(3) Water absorption
(4) Vaporization

199. Active uptake of minerals depends upon :-
(1) Active ions absorption
(2) Transpiration
(3) Photorespiation
(4) Dephosphorylation

200. When chlorophyll is burnt , which one obtained ?
(1)Fe (2) Mg
(3)Ca (4) Mn

201. Which element related with Khaira disease, of Paddy & auxin synthesis :-
(1) Fe (2) Zn
(3) B (4) Cu

202. Generally plants absorbed N_2 in the form of :-
(1) NO_2- (2) NO_3-
(3) N=N (4) HNO_2

203. Cobalt present in :-
(1) Vit,-A (2) Vit.-B_2
(3)Vit,-B_{12} (4)PC

204. Which is essential for N_2 metabolism ?
(1) B (2) Mo
(3) Cu (4) Mg

205. The major portion of the dry weight of plants comprises of :-[AIPMT-2003]
(1) Nitrogen ,phoshorus and potassium
(2) Calcium, magnesium and sulphur
(3) Carbon, nitrogen and hydrogen
(4) Carbon, hydrogen and oxygen

206. Which one of the following mineral elements plays an important role in biological nitrogen fixation? [AIPMT -2003]
(1) Copper (2) Manganese
(3) Zinc (4) Molybdenum

207. Stomata of CAM plants :- [AIPMT-2003]
(1) Are always open
(2)Open during the day & close at night
(3) Open during the night & close during the day
(4) Never open

208. Stomata of a plant open due to :- [AIPMT-2003]
(1) Influx of potassium ions
(2) Efflux of potassium ions
(3) Influx of hydrogen ions
(4) Influx of calcium ions

209. 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

210. In which one of the following is nitrogen not a constituent ? [AIPMT-2002]
(1) Idioblast
(2) Bacteriochlorophyll
(3) Invertase
(4) Pepsin

211. Gray spots of Oat are caused by deficiency of : [AIPMT-2003]
(1) Cu (2) Zn
(3) Mn (4) Fe

212. The most abundant element present in the plants is – [AIPMT -2004]
(1) Iron (2) Carbon
(3) Nitrogen (4) Manganese

213. The ability of the Venus Flytrap to capture insects is due to –[AIPMT-2005]
(1) Chemical stimulation by the prey
(2) a passive process requiring no special ability on the part of the plant
(3) specialized " muscle –like "cells
(4) rapid turgor pressure changes

214. 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 most , both photosynthetic and mitochondrial electron transport : [AIPMT-2005]
(1) Cu, Mn, Fe (2) Co, Ni, Mo
(3) Mn, Co, Ca (4) Ca, K, Na

215. Potometer woks on the principle of : [AIPMT-2005]
(1) Amount of water absorbed equals the amount transpired
(2) Osmotic pressure
(3) Root pressure
(4) Potential difference between the tip of the tube and that of the plant

216. Farmers in a particular region were concerned that pre-mature yellowing of leaves of a pulse crop might cause decrease in the yield . Which treatment could be most beneficial to obtain maximum seed yield
(1) Removal of all yellow leaves and spraying the remaining green leaves with 2,4,5-trichlorophenoxy acetic acid .
(2) Application of iron and magnesium to promote synthesis of chlorophyll
(3) Frequent irrigation of the crop
(4) Treatment of the plants with cytokinins along with a small dose of nitrogenous fertilizer.

217. Sulphur is an important nutrient for optimum growth and productivity in [AIPMT-2006]
(1) Fibre crops (2) Oil seed crops
(3) Pulse crops (4) Cereals

218. A plant requires magnesium for [AIPMT-2007]
(1) Cell wall development
(2) Holding cells together
(3) Protein synthesis
(4) Chlorophyll synthesis

219. Which of the following is a flowering plant with nodules containing filamentous nitrogen-fixing [AIPMT-2007]
(1) Cicer aritinum
(2) Casuarina equisetifalia
(3) Crotalaria juncea
(4) Cycas revoluta

220. About 98 percent of the mass of every living organism is composed of just six elements including carbon, hydrogen , nitrogen , oxygen and : [AIPMT-2007]
(1) Calcium and phosphorus
(2) Phosphorus and sulphur
(3) Sulphur and magnesium
(4) Magenesium and sodium

221. Which one of the following elements is not an essential micronutrient for plant growth ? [AIPMT-2007]
(1)Ca (2) Mn
(3) Zn (4) Cu

222. Carbohydrates are commonly found as starch in plant storage organs. Which of
(a) Easily translocated
(b) Chemically non – reactive
(C) Easily digested by animals
(d) Osmotically inactive
(e) Synthesized during photosynthesis
The useful properties are :-
(1) (a), (c) and (e) (2) (a) and(e)
(3) (b) an (c) (4) (b) an (d)

223. Nitrogen fixation in root nodules of Alnus is brought about by :- [AIPMT-2008]
(1) Frankia (2) Azorhizobium
(3) Bradyrhizobium (4) Clostridium

ANSWER KEY EXERCISE – 2

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**4**	**1**	**3**	**1**	**1**	**2**	**3**	**2**	**3**	**1**	**1**	**4**	**3**	**3**	**3**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**3**	**2**	**1**	**2**	**2**	**3**	**1**	**3**	**2**	**3**	**1**	**4**	**4**	**1**	**2**
Que.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	**2**	**4**	**2**	**1**	**3**	**1**	**1**	**3**	**3**	**2**	**2**	**3**	**1**	**1**	**4**
Que.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	**2**	**1**	**3**	**3**	**4**	**3**	**3**	**4**	**3**	**3**	**4**	**1**	**4**	**3**	**3**
Que.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	**1**	**4**	**3**	**1**	**1**	**4**	**4**	**4**	**4**	**1**	**4**	**4**	**3**	**2**	**2**
Que.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Ans.	**2**	**2**	**4**	**3**	**2**	**1**	**3**	**1**	**3**	**3**	**1**	**2**	**3**	**3**	**2**
Que.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
Ans.	**4**	**2**	**4**	**3**	**2**	**4**	**4**	**2**	**2**	**4**	**4**	**3**	**2**	**3**	**3**
Que.	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Ans.	**3**	**4**	**2**	**3**	**1**	**3**	**2**	**1**	**4**	**1**	**2**	**2**	**4**	**2**	**2**
Que.	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135
Ans.	**2**	**2**	**1**	**2**	**4**	**3**	**2**	**2**	**4**	**3**	**3**	**4**	**4**	**2**	**1**
Que.	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
Ans.	**2**	**1**	**3**	**1**	**3**	**1**	**4**	**3**	**3**	**4**	**1**	**2**	**1**	**2**	**1**
Que.	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
Ans.	**2**	**3**	**1**	**2**	**1**	**3**	**1**	**4**	**3**	**4**	**1**	**4**	**1**	**2**	**2**
Que.	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
Ans.	**2**	**3**	**1**	**3**	**3**	**2**	**1**	**3**	**1**	**1**	**3**	**4**	**4**	**1**	**2**
Que.	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195
Ans.	**2**	**2**	**1**	**3**	**1**	**1**	**2**	**1**	**4**	**1**	**1**	**3**	**4**	**4**	**2**
Que.	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210
Ans.	**2**	**4**	**1**	**4**	**2**	**2**	**2**	**3**	**2**	**4**	**4**	**3**	**1**	**1**	**1**
Que.	211	212	213	214	215	216	217	218	219	220	221	222	223		
Ans.	**3**	**2**	**4**	**1**	**1**	**2**	**2**	**4**	**2**	**2**	**1**	**4**	**1**		