BIOLOGY

BOOKS - CHETANA PUBLICATION

PLANT WATER RELATION

Example

1. Which are the various parts of plant body?

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2. What are the functions of various parts of plant body?

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3. Which plant tissues are involved in transport of water and minerals?

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4. What is the main source of water for plants?

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5. Water is considered as 'elixir of life'.

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6. Write the uses of water in plants.

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7. What are main properties of water?

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8. What are the meanings of specifis heat, heat of vaporization and heat of fusion?

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9. What are adhesive and cohesive forces?

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10. What is a hydrogen bond?

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11. What is velamen and where do you find them?

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12. Describe regions of Root.

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13. Describe structure of root hair.

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14. What is rhizosphere?

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15. What are the different types of water present in soil?

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16. List different types of water.

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17. Which type of water is available to the plants for absorption?

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18. Which are the physical processes involved in absorption of water?

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19. Define the terms : Osmosis, diffusion, imbibition, DPD, turgor pressure, wall pressure.

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20. Define Osmotic pressure

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21. Write a note on Faciliated diffusion?

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22. Compare Exo-osmosis and Endo-osmosis

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23. Explain the terms: Endo-osmosis

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24. Explain the terms: Exo-osmosis

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25. What are hypotonic, hypertonic and isotonic solutions?

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26. Enlist the importance of Turgor pressure

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27. Why do the wooden doors become very hard to close and open in rainy season.

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28. When you burn an incense stick in one corner of a room, its fragrance spreads all over the room in a short time. How does it happen?

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29. Distinguish between: Diffusion and osmosis

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30. What is the importance of Osmosis?

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31. Sketch and label a diagram to explain the diffusion of water into plant coll across plasma membrane.

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32. What is solute potential?

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33. Briefly described water potential?

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34. What are the factors affecting water absorptioin?

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35. What happens when a pressure greater than the atmospheric pressure is applied to pure water or a solution?

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36. What is the unit of water potential?

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37. Name the condition in which protoplast of the plant cell shrinks.

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38. What is deplasmolysis?

Watch Video Solution

39. Which type of solution will bring about deplasmolysis?

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40. Define Plasmolysis.

Watch Video Solution

41. Define Root pressure.

Watch Video Solution

42. Write on the journey of water from soil to xylem in roots.

Watch Video Solution

43. Explain movement of water in the root.

Watch Video Solution

44. Differntiate between Apoplast and Symplast Pathway.

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45. Mention any two characteristics of active absorption.

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46. Define Active and Passive absorption.

Watch Video Solution

47. Differentiate between Active and Passive Absorption.

Watch Video Solution

48. Describe mechanism for absorption of water.

Watch Video Solution

49. List and explain two mechanism of water absorption.

Watch Video Solution

50. Write a note on Non-osmotic absorption.

Watch Video Solution

51. List and explain two mechanism of water absorption.

Watch Video Solution

52. Define: Sap

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53. Define : Ascent of Sap.

Watch Video Solution

54. What is exudation (bleeding).

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55. Which instrument is used to measure root pressure?

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56. Which type of plants have negative root pressure?

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57. What is the importance of root pressure?

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58. Enlist the different theories to put forth the mechanism of translocation of water.

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59. Discuss theories of water translocation.

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60. What are the limitations of root presssure theory?

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61. Explain the terms: Cohesive force

Watch Video Solution

62. Explain the terms: Adhesive force

Watch Video Solution

63. Explain the terms: Transpiration pull

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64. Explain the terms: Surface tension

Watch Video Solution

65. Define Root pressure.

Watch Video Solution

66. Sketch and label the diagram to show the experiment on root pressure.

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67. Explain capillarity theory in connection with translocation of water.

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68. What are the limitations of capillarity theory?

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69. Explain cohesion theory for translocation of water.

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70. Explain the terms: Transpiration pull

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71. What are the objections of transpiration pull?

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72. Enlist macronutrients and micronutrients required for plant growth.

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73. How are the minerals absorbed by the plant?

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74. Different modes of passive absorption and active absorption of mineral in plants.

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75. Carrier concept of active absorption?

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76. Enlist macronutrients and micronutrients required for plant growth.

Watch Video Solution

77. What essential roles do the root endodermis play during water-mineral absorption in plants.

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78. What is translocation of organic solutes?

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79. NAme the special conducting tissue to translocate food in plants?

Watch Video Solution

80. Which part of plant is referred as the supply end and sink end?

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81. Who explained the mechanism of trnslocation of organic food?

Watch Video Solution

82. What is translocation of food in plants. Explain.

Watch Video Solution

83. Write the mechanism of sugar transport through phloem.

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84. Define and or explain the terms : Transpiration

Watch Video Solution

85. Define and or explain the terms : Guttation

Watch Video Solution

86. What is translocation?

Watch Video Solution

87. Explain the role of transpiration.

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88. What is terminator? What is its significance in transcription?

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89. Describe in brief the three types of transpiration.

Watch Video Solution

90. What are the harmful effects of transpiration.

Watch Video Solution

91. Mention the shape of guard cells in Cyprus.

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92. With the help of a neat and labeled diagram describe the guard cells in monocot and dicot plants.

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93. Why do diurnal changes occur in osmotic potential of guard cells?

Watch Video Solution

94. Why is transpiration called a necessary evil?

Watch Video Solution

95. Describe mechanism of opening and closing of stomata.

Watch Video Solution

96. Who explained the mechanism of opening and closing of stomata.

Watch Video Solution

97. Give a account of stomatal transpiration.

Watch Video Solution

98. Describe mechanism of opening and closing of stomata.

Watch Video Solution

99. Who referred transpiration as unavoidable evil and necessary evil?

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100. Distinguish between : Evaporation and Transpiration.

Watch Video Solution

101. Distinguish between : Guttation and Transpiration.

Watch Video Solution

102. What is hydroponics? How is it useful in identifying the role of nutrients.

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Exercise

1. In soil water available for absorption by root is .....

A. gravitational water

B. capillary water

C. hydroscopic water

D. combined water

Answer:

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2. The most widely accepted theory for ascent of sap is .....

A. capillarity theory

B. root pressure theory

C. diffusion

D. transpiration pull throry

Answer:

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3. Water movement between the cells is due to .....

A. TP

B. WP

C. DPD

D. incipient plasmolysis

Answer:

Watch Video Solution

4. In guard cells, when sugar is converted into starch the stomatal pore.....

A. closes almost completely

B. opens partially

C. opens fully

D. remains unchanged

Answer:

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5. Surface tension is due to .....

A. diffusion

B. Osmosis

C. gravitational force

D. Cohesion

Answer:

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6. Which of the following types of solution has lower level of solutes than the solution?

A. Isotonic

B. Hypotonic

C. Hypertonic

D. Anisotonic

Answer:

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7. During rainy season wooden doors warp and become difficult to open or to close because of .....

A. Plasmolysis

B. Imbibition

C. Osmosis

D. Diffusion

Answer:

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8. Water absorption takes palce through.....

A. lateral roots

B. root cap

C. root hair

D. primary root

Answer:

Watch Video Solution

9. Due to low atmospheric prssure the rate of transpiration will.....

A. increase

B. decrease rapidly

C. decrease slowly

D. remain unaffected

Answer:

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10. Osmosis is a property of.....

A. solute

B. solvent

C. solution

D. membrane

Answer:

Watch Video Solution

11. Root hair will absorb water when external solution is.....

A. Viscous

B. Isotonic

C. Hypertonic

D. Hypotopnic

Answer:

Watch Video Solution

12. Absorption of water involving the activity of root is called.....

A. Active absorption

B. Imbibition

C. Passive absorption

D. Diffusion

Answer:

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13. Uptake of water at the expenses of metabolic energy is known as.....

A. Endosmosis

B. Diffusion

C. Active absorption

D. Passive absorption

Answer:

Watch Video Solution

14. Maximum transpiration occus through.....

A. Stomate

B. Cuticle

C. Lenticels

D. Barle

Answer:

Watch Video Solution

15. Water in plants rises through.....

A. xylem

B. phloem

C. pith

D. cortex

Answer:

Watch Video Solution

16. Guard cells are associated with.....

A. Lenticels

B. Hydathodes

C. Stomata

D. Epiblema

Answer:

Watch Video Solution

17. Three compartments of a cell are.....

A. cell wall, vacuole and protoplasm

B. cell wall, plasma membrane and cytoplasm

C. cell wall, chloroplast and mitochondria

D. cell wall, tonoplast and chloroplast

Answer:

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18. An example of a not seclectively permeable membrane is.....

A. plasmalemma

B. cell wall

C. mitochondrial membrane

D. chloroplast membrane

Answer:

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19. Purple cabbage leaves do not loose their colour in cold water but they do so in boiling water because .....

A. The plasma membrane gets killed in boiling water

B. hot water can enter the cells readily

C. the pigment is not soluble in cold water

D. the cell wall is killed in boiling water

Answer:

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20. Uniformly sweet taste of tea or coffee is due to .....

A. spreading

B. osmosis

C. permeability

D. Diffusion

Answer:

Watch Video Solution

21. In plants, the semipermeable membrane allows the diffusion of.....

A. solvent

B. solute

C. bothe a and b

D. none of these

Answer:

Watch Video Solution

22. Water potential in a cell of root hair absorbing the water is.....

A. zero

B. less than zero

C. more than zero

D. more than that of soild and water

Answer:

Watch Video Solution

23. To initiate plasmolysis in plant cells the salt solution uesed as.....

A. hypertonic

B. Hypotonic

C. isotonic

D. atonic

Answer:

Watch Video Solution

24. In pickles, infection is rare due to .....

A. Plasmolysis

B. decrease in osmotic potential by salt

C. increase in osmotic potential by salt

D. decrease in temperature by salt

Answer:

Watch Video Solution

25. Why plants die when overfertilized ? .....

A. As a result of dehydration

B. Due to damag of walls of root hairs

C. Due to blockage of nitrogenous ions

D. Due to upsets iin soil evironment by poisonous soil bacteria

Answer:

Watch Video Solution

26. A plasolysed cell can be deplasmolysed by placing it in.....

A. saturated solution

B. pure water or hypotoonic solution

C. isotonic solution

D. hypertonic solution

Answer:

Watch Video Solution

27. Plant cell do not burst in distilled water because the cell wall is.....

A. elastic, rigid and get streched

B. living

C. the outermost layer in planet cell

D. permeable

Answer:

Watch Video Solution

28. If a plant cell is immersed in water, the water continues to enter the cell until the .....

A. concentration of the salt is the cell as outside

B. cell bursts

C. diffusion pressure is the same inside cell as outside

D. concentration water is the same in the cell as outside

Answer:

Watch Video Solution

29. Plant cell submerged in distilled water become .....

A. flaccid

B. turgid

C. plasmolysed

D. impermeable

Answer:

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30. Turgidity in plant cells maintain by

A. Osmotic pressure

B. Wall pressure

C. Turgor pressure

D. Diffusions pressure

Answer:

Watch Video Solution

31. The turgor pressure of turgid cell is equal and opposite to .....

A. root pressure

B. Wall pressure

C. diffusion pressure

D. all the above

Answer:

Watch Video Solution

32. Wooden doors swell up and get stuck up during rainy season due to .....

A. imbibition

B. endosmosis

C. capillarity

D. deplasmolysis

Answer:

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33. Many transplanted seedling may not survive because.....

A. most of the root hair are lost during transplantation

B. the leaves get damaged during the transfer

C. they do not get the required mineral

D. they do not like the new soil

Answer:

Watch Video Solution

34. Write on the journey of water from soil to xylem in roots.

A. $m\eta xy \leq m \to pro \to xy \leq m \to c \text{ or } tex \to \sqrt[h]{a}ir$

B.

$$c \text{ or } tex \to \sqrt[h]{a}ir \to endodermispericy \leq \to protexy \leq m \to m\eta x$$

C.

$$soil \to \sqrt[h]{air} \to c \text{ or } tex \to endodermispericyc \leq \to pro \to xy \leq$$

D.

$$pericyc \leq \to soil \to \sqrt[h]{air} \to c \text{ or } tex \to endodoermis \to pro \to$$

Answer:

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35. Casparian strips are located in .....

A. root cap

B. root hair

C. endodermis

D. none of these

Answer:

Watch Video Solution

36. The water absorption through the roots due to transpiration pull is called .....

A. active

B. passive

C. both a and b

D. none of these

Answer:

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37. Ascent of sap in plants explains.....

A. diffusion of water

B. loss of water from leaves

C. the vertical rise of water in stem against the force of gravity

D. building up of organic food

Answer:

Watch Video Solution

38. Water in plants is transported by .....

A. Cambium

B. pholem

C. xylem or xylem vessel elements

D. epidermis

Answer:

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39. Root pressure is maximum when .....

A. transpiration is high and absorption is very low

B. transpiration is very low and absorption is high

C. transpiration is very high and abosrption is also high

D. transpiration and absorption both are low

Answer:

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40. Root pressure is absent in .....

A. rapidly transpiring plants

B. conifers

C. plant growing in cold soils

D. all of these

Answer:

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41. The absorbed water can rise to highest point by .....

A. root pressure

B. imbibition force

C. force of capillary

D. transpiratioin pull

Answer:

Watch Video Solution

42. The mechanism by which water moves from roots to leaves is called.....

A. De Vries Cytoplasmic Streaming Theory

B. Munch's Presssure Flow Theory

C. Translocation of Solutes

D. Dixon's Theory of Cohesion

Answer:

Watch Video Solution

43. The force responsible for raising water in 100 ft tall plant is .....

A. transpiration pull

B. root pressure

C. air pressure

D. capillary action

Answer:

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44. Cohesive force of water is between .....

A. water and water

B. cell wall and cell wall

C. water and cell wall

D. attraction

Answer:

Watch Video Solution

45. Transpiration- cohesion - tension theory operates in .....

A. Active absorption

B. passive absorption

C. both active and passive

D. none of these

Answer:

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46. Rate of water absorption can be increase through .....

A. decereased transpiration

B. decreased ion absorption

C. increased photosynthesis

D. increased transpitation

Answer:

Watch Video Solution

47. Rate of water absortion is slow near freezing point because .....

A. water absorption is a metabolic process

B. cell growth stops

C. transpiration is reduced

D. cell membrane become more viscous

Answer:

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48. Which of the following is called necessary evil?

A. Osmosis

B. Absorption

C. Transpiration

D. Photosynthesis

Answer:

Watch Video Solution

49. "Transpiration is a necessary evil" was given by ....

A. Steward

B. Bose

C. Anderson

D. curtis

Answer:

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50. Transpiration occurs in .....

A. leaves

B. stems

C. all aerial parts

D. roots

Answer:

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51. In plants, the process of transpiration helps in .....

A. absorption of O_2`

B. upward conduction of water and minerals

C. absorption CO_2

D. opening of stomata

Answer: upwads translocation of water

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52. In lenticular transpiration, loss of H_2O in the form of water vapour is through .....

A. Openings present on stem and fruits

B. stomatal opening present on leaves and on green stem

C. the cuticle present on the surface of stem and leaves

D. none of these

Answer:

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53. Which of the following is not a the type of transpiration ?

A. Stomatal transpiration

B. Cuticular transpiration

C. Lenticular transpiration

D. Endodermal transpiration

Answer:

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54. The rate of transpiration is practically nil during .....

A. 50% relative humidity

B. 60% relative humidity

C. 100% relative humidity

D. 0% relative humidity

Answer:

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55. Minimum transpiration is found in .....

A. hydrophytes

B. mesophytes

C. xerophytes

D. lithophytes

Answer:

Watch Video Solution

56. Wilting appears due to excessive.....

A. respiration

B. absorption

C. photosynthesis

D. transpiration

Answer:

Watch Video Solution

57. Stomata in angiosperms open and close due to .....

A. their genetic constitution

B. effect of hormones

C. changes of turgor pressure in guard cells

D. pressure of gases inside the leaves

Answer:

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58. Which of the following is the most likely cause for wider opening of stomata?

A. The atmosphere outside the stomata is becoming less humid

B. Secretions of salt molecules by the adjacent guard cells is taking place

C. Water molecules enter guard cells

D. The night temperature is going to fall

Answer:

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59. Transpiration pull will be maximum under which of the following conditions?

A. Open stomata, high humid atmosphere and well irrigated soil

B. Open stomata, dry atmosphere and moist soil

C. Open stomata, high humid atmosphere and dry soil

D. Closed stomata, low light intensity and humid atmosphere

Answer:

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60. In which of the following situation, the stomata transpiration exhibits a steep decline?

A. High O_2

B. High CO_2

C. Dry air

D. Full water saturation of the plant

Answer:

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61. In hypertonic solution, the water potential of a cell.....

A. decreases

B. increases

C. first increases and then decreases

D. does not change

Answer:

Watch Video Solution

62. A cell is plasmolyzed after being kept in a hypertonic solution. What will be prescribed betwen cell wall and plasmalemma?

A. isotonic solution

B. hypertonic solution

C. air

D. hypotonic solution

Answer:

Watch Video Solution

63. Water is absorbed when outside solution is .....

A. hypertonic

B. Hypotonic

C. isotonic

D. none of these

Answer:

Watch Video Solution

64. Osmosis involves .....

A. diffusion of suspended particles higher to lower concentration

B. diffusion of suspended particles for lower to higher concentration

C. diffusion of water from more to less concentrated side

D. diffusion of water from less to more concentrated side

Answer:

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65. Which of the following is against concentration gradient?

A. Transpiration

B. Translocation

C. Diffusion

D. Osmosis

Answer:

Watch Video Solution

66. The pressure exerted by cell wall to balance the turgor pressure is called.....

A. wall pressure

B. osmotic pressure

C. DPD

D. imbibition pressure

Answer:

Watch Video Solution

67. If cells completely lack turgor pressure, they are said to be .....

A. immobile cells

B. incative cells

C. flaccid cells

D. dead cells

Answer:

Watch Video Solution

68. Larger molecules (bulk flow?) are taken into cell by .....

A. osmosis

B. pinocytosis

C. phagocytosis

D. both b and c

Answer:

Watch Video Solution

69. Root hair will absorb water when external solution is.....

A. Viscous

B. Isotonic

C. Hypertonic

D. Hypotonic

Answer:

Watch Video Solution

70. Absorption of water involving the activity of root is called.....

A. Active absorption

B. Imbibition

C. Passive absorption

D. Diffusion

Answer:

Watch Video Solution

71. Uptake of water at the expenses of metabolic energy is known as.....

A. Endosmosis

B. Diffusion

C. Active absorption

D. Passive absorption

Answer:

Watch Video Solution

72. Which of the following is the major source of water for land plants?

A. gravitational water

B. Hygroscopic water

C. Capillary water

D. combined water

Answer:

Watch Video Solution

73. Maximum transpiration occurs through .....

A. Stomata

B. Cuticle

C. Lenticels

D. Bark

Answer:

Watch Video Solution

74. Water in plants rises through.....

A. xylem

B. phloem

C. pith

D. cortex

Answer:

Watch Video Solution

75. Guard cells are associated with.....

A. Lenticels

B. Hydathodes

C. Stomata

D. Epiblema

Answer:

Watch Video Solution

76. Wooden doors swell up and get stuck up during rainy season due to .....

A. Endosmosis

B. Exosmosis

C. Imbibition

D. Capillarity

Answer:

Watch Video Solution

77. Opening and closing of stomata is due to the ....

A. Hormonal changes in guard cell.

B. Change in turgor pressure of guard cells.

C. Gaseous exchange

D. Respiration

Answer:

Watch Video Solution

78. Solution outside a cell has higher concentration than cell sap the solution is.....

A. Isotonic

B. Hypotonic

C. Hypertonic

D. Acidic

Answer:

Watch Video Solution

79. Chlorosis results from the deficiency of .....

A. Sodium

B. Boron

C. Magnesium

D. Phosphorous

Answer:

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80. Critical elements are .....

A. N, P, K

B. Na, P and Ca

C. N, P, Mg

D. Mn, Fe and Cu

Answer:

Watch Video Solution

81. Which of the following is trace element ?

A. Mg

B. Nitrogen

C. Sulphur

D. Mn

Answer:

Watch Video Solution

82. Which of the following is a macronutrient?

A. Ca

B. Mn

C. Zn

D. Ni

Answer:

Watch Video Solution

83. Nitrogen is an important constituent of .....

A. Carbohydrates

B. Sugars

C. Proteins

D. Polyphosphates

Answer:

Watch Video Solution

84. What is water potential?

Watch Video Solution

85. Write two uses of water?

Watch Video Solution

86. Define : Ascent of Sap.

Watch Video Solution

87. Define diffusion.

Watch Video Solution

88. Explain the terms: Plasmolysis

Watch Video Solution

89. Explain the terms: Deplasmolysis

Watch Video Solution

90. Draw a stoma and label the parts.

Watch Video Solution

91. mention the 2 advantages of transpirationn.

Watch Video Solution

92. Why is transpiration called a necessary evil?

Watch Video Solution

93. Explain the process of stomatal transpiration.

Watch Video Solution

94. Explain the mechanism of cohesion theory.

Watch Video Solution

95. Describe the course of translocation of organic sap and its mechanisms.

Watch Video Solution

96. With the help of a diagram explain the two pathways of water across the root cells.

Watch Video Solution

97. What is transpiration? Describe the three types of transpiration.

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