BIOLOGY

BOOKS - MBD BIOLOGY (ODIA ENGLISH)

TRANSPORT IN PLANTS

Question Bank

1. A cell swells up when kept in:

A. hypotonic solution

B. hypertonic solution

C. isotonic solution

D. none of these

Answer: A

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2. The first process by which water enters into the seed coat when a seed is placed in suitable environment for germination is:

A. osmosis

B. active transport

C. absorption

D. imbibition

Answer: D

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3. Two cells A and B are continuous . Cell A has osmotic pressure 10 atm, turgor pressure 7 atm and diffusion pressure deficit 3 atm. Cell B

has osmotic pressure 8 atm, turgor pressure 3 atm and diffusion pressure deficit 5 atm. The result will be:

A. no movement of water

B. equilibrium between the two

C. movement of water from cell A to B

D. movement of water from cell B to A

Answer: C

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4. Phenomenon of plasmolysis occurs when:

A. cells are kept in hypertonic solution

B. cells are kept in hypotonic solution

C. cells are kept isotonic solution

D. none of these

Answer: A

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5. The water potential and osmotic potential of pure water at normal atmospheric pressure are respectively:

A. 100 and 100

B. 100 and zero

C. zero and 100

D. zero and zero

Answer: D

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6. Phenomenon of plasmolysis occurs when:

A. hypotonic solution

B. hypertonic solution

C. isotonic solution

D. none of these

Answer: B

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7. Osmosis is the diffusion of:

A. solute

B. free energy

C. water

D. solute and solvent

Answer: C

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8. Which of the following plant material is an efficient water imbibant?

A. Lignin

B. Pectin

C. Agar

D. Cellulose

Answer: C

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9. In thistle funnel experiment, what will occur if sugar solution is added to beaker, after the process of osmosis stops ?

A. The level of solution in thistle funnel rises up

B. The level of solution in thistle funnel lowers

C. The level of solution in beaker lowers

D. The level of solution remains unaffected in beaker

Answer: D

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10. Grahams law is correlated with:

A. Diffusion

B. Osmoregulation

C. Osmosis

D. Adsorption

Answer: A

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11. Solute potential of a solution is always:

A. =0

B. >0

C. <0

D. between 0-1

Answer: C

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12. When the cell is fully turgid, its:

A. DPD=OP

B. DPD= zero

C. WP=TP

D. OP=zero

Answer: B

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13. If a living cell is placed in____ solution water enters into the cell by osmosis.

A. Isotonic

B. hypertonic

C. hypotonic

D. highly saline

Answer: C

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14. Movement of H_2O through cell wall is called:

A. Apoplast

B. Symplast

C. Tonoplast

D. None of these

Answer: A

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15. Opening and closing of stomata is due to

A. C_a^+

B. N_a^+

C. K_+

D. Cl^-

Answer: C

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16. What will be the effect of accumulation of K^+ ions in guard cells

A. Water potential increases

B. Water potential decreases

C. Loss of turgidity

D. Exosmosis

Answer: B

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17. When the concentration of the soil solutes is low, the absorption of water:

A. Remains normal

B. Is stopped

C. Is increased

D. Is decreased

Answer: C

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18. Guttation is mainly due to:

A. Root pressure

B. Imbibition

C. Osmosis

D. Transpiration

Answer: A

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19. The rupture and fractionation don't usually occur in the water column in vessel/tracheids during the ascent of sap because of:

A. Weak gravitational pull

B. Transpiration pull

C. Lignified thick walls

D. Cohesion and adhesion

Answer: D

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20. Root pressure is higher when:

A. transpiration is very low and absorption is low

B. transpiration is very high and absorption is very high

C. transpiration is low and absorption is high

D. transpiration is high and absorption is low

Answer: A

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21. When stomata closes which of the following events does not occur ?

A. guard cell become flaccid

B. sugar is converted to starch

C. O.P of the guard cell decreases

D. accumulation of O_2 takes place

Answer: D

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22. Of all the environment factors which is the not influential indetermining the rate of transpiration ?

A. Light

B. Water

C. Relative humidity of atmosphere

D. Temperature

Answer: C

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23. Most of the water flow in the root takes place via apoplast because:

A. Cortical cells are loosely arranged

B. Cortical cells are living cells

C. Cortical cells are thin walled cells

D. All of the above

Answer: A

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24. Guttation is mainly due to:

A. Transpiration

B. High root pressure

C. Closure of stomata

D. Bleeding

Answer: B

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25. Closure of stomata in response to water stress is controlled by which of the following hormones ?

A. Cytokinin

B. Auxin

C. ABA

D. Vernalin

Answer: C

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26. Hydathode helps in:

A. Transpiration

B. Guttation

C. Photosynthesis

D. Respiration

Answer: B

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27. Which one of the following is a driving force for the process of passive absorption of water in roots ?

A. The increase in imbibitional pressure in root cells

B. Root pressure

C. Actvity of aquaporins

D. Transpiration in leaves

Answer: D

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28. Attraction of water molecules to polar surface is known as:

A. Cohesion

B. Capillarity

C. surface tension

D. Adhesion

Answer:

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29. Stomatal opening or closing is due to:

A. Change in the turgidity of guard cells

B. The inner walls each guard cell is thick and elastic

C. Cellulose microfibrils of guard cells are oriented radially

D. All of the above

Answer: D

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30. In a fully turgid cell the _____ is zero.

A. DPD

B. OP

C. WP

D. TP

Answer: A

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31. In land plants, the guard cells differ from other epidermal cells in having:

A. Cytoskeleton

B. Mitochondria

C. Endoplasmic reticulum

D. Chloroplasts

Answer: D

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32. Guttation is mainly due to:

A. Diffusion

B. Transpiration

C. Osmosis

D. Root pressure

Answer: D

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33. Opening and closing of stomata is due to

A. Mg^{+2}

B. Na^{+}

C. K^+`

D. P

Answer: C

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34. The root cap is not used in absorption of water due to:

A. Presence of root hairs

B. Absence of root hairs

C. Its presence in elongation zone

D. none of these

Answer: B

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35. For a plasmolysed cell which equation is correct?

A. DPD=OP+TP

B. DPD=-TP

C. DPD=OP

D. DPD=OP-TP

Answer: C

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36. In higher plants, continiuity of cytoplasm from one cell to its neighbouring cells is established through:

A. Apoplast

B. Chloroplast

C. Leucoplast

D. symplast

Answer: D

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37. Force generated by transpiration can create sufficient pressure to lift water even upto the height of:

A. 130 feet

B. 130 metre

C. 230 feet

D. 230 metre

Answer: B

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38. Plant cells dipped in distilled water will become:

A. Turgid

B. Plasmolysed

C. Flaccid

D. Impermeable

Answer: A

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39. Water potential and osmotic potential of pure water is:

A. Zero and zero

B. 100 and zero

C. 100 and 100

D. zero and 100

Answer: A

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40. The force which determines the flow of water from one cell to another is:

A. T.P.

B. O.P.

C. W.P.

D. D.P.D

Answer: D

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41. A cell becomes fully turgid, if it is placed in

A. Isotonic solution

B. Hypotonic solution

C. Hypertonic solution

D. Normal Solution

Answer: B

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42. A plasmolysed cell when placed in a solution becomes deplasmolysed. The solution is:

A. Isotonic

B. Toxic

C. Hypotonic

D. Hypertonic

Answer: C

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43. Imbibition is due to:

A. Absorption

B. Adsorption

C. Endosmosis

D. Exosmosis

Answer: B

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44. Maximum water moves in which pathway ?

A. Apoplast

B. Symplast

C. Vacuolar

D. Osmotic

Answer: A

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45. Under a suitable condition, OP will be less than DPD when:

A. OP is greater than TP

B. OP is equal to TP

C. OP is less than TP

D. TP is negative

Answer: D

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46. What will be the direction of net movement of water between cell A and B, if DPD of A is lower than B ?

A. A TO B

B. B to A

C. Equally bidirectional

D. No net movement

Answer: A

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47. Source of turgor in plant cell is:

A. Air

B. Water

C. Hormones

D. All of these

Answer: B

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48. If there is no movement of water in a cell from outside medium, the medium is known as:

A. Hypertonic

B. Hypotonic

C. Isotonic

D. Non-ionic

Answer: C

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49. The diffusion of water through a semipermeable membrane is known as:

A. osmosis

B. Imbibition

C. Guttation

D. Transpiration

Answer: A

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50. A membrane which permits selective movement of molecules through it , is called:

A. Permeable membarne

B. Unit membrane

C. Semipermeable membrane

D. Impermeable membrane

Answer: C

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51. DPD is equal to:

A. TP-OP

B. OP-TP

C. OP+TP

D. OPxTP

Answer: B

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52. If a cell 'X' has OP=6 and TP=5 and is surrounded by the cell with OP=4 and TP=2, then what will be the direction of water movement ?

A. From other cell to cell 'X'

B. From cell 'X' to other cell

C. No movement of water

D. water will move freely

Answer: B

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53. The lowest water potential is found in the xylem channel of:

A. Stem

B. Root

C. Root hair zone

D. Leaves

Answer: D

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54. Which of the following has highest water potential ?

A. 1 M salt solution

B. 1 M sugar solution

C. Distilled water

D. 1 M sugar solution with 2.3 bars pressure applied to it.

Answer: D

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55. When the concentration of solutes is greater outside the cell than inside, the solution outside the cell is:

A. Isotonic

B. Hypertonic

C. hypotonic

D. none of these

Answer: B

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56. If water enters in a cell, the pressure exerted by its swollen protoplast is:

A. Turgor pressure

B. DPD

C. Osmotic pressure

D. imbibition

Answer: A

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57. A cell when dipped in 0.5M sucrose solution has no effect, but when the same cell will be dipped in 0.5 M NaCl solution, it will:

A. Increase in size

B. Decrease in size

C. Will be turgid

D. Will get plasmolysed

Answer: B

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58. Identify the correct relationship with reference to water potential of a plant cell:

A. $\Psi_w = \Psi_m + \Psi_p$

B. `Psi_(w)=Psi_(m)+(Psi_(s)-Psi_(p))'

C. `Psi_(w)=Psi_(m)-(Psi_(s)+Psi_(p))'

D. `Psi_(w)=Psi_(m)+Psi_(s)+Psi_(p)'

Answer: A

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59. Which factor is most effective in regulating transpiration ?

A. Light

B. Temperature

C. Wind

D. Humidity

Answer: D

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60. Which is not related to transpiration ?

A. Temperature

B. Exudation

C. Absorption of minerals

D. Water circulation

Answer: B

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61. Who said that 'transpiration is a necessary evil'

A. Bose

B. Stewart

C. Curtis

D. Anderson

Answer: C

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62. Guttation is mainly due to:

A. Imbibition

B. Osmosis

C. Root pressure

D. Transpiration

Answer: C

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63. Plants lose water by guttation when:

A. Rate of transpiration is high

B. Soil is wet and the atmosphere is humid

C. Soil is dry and atmosphere is dry

D. Soil is wet and atmosphere is dry

Answer: B

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64. Cohesion theory of ascent of sap was proposed by:

A. Dixon

B. Bose

C. Pristley

D. Atkins

Answer: A

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65. Steward's theory of stomatal opening and closure assumes the presence of enzymes in guard cells:

A. Phosphorylase and phosphatase

B. Hexokinase and phospho-glucomutase

C. Phosphorylase, phospho-glucomutase, phosphatase and hexokinase

D. Phosphorylase and phosphoglucomutase

Answer: C

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66. Which of the following amphistomatous leaves would dry up last ?

A. Both surface greased

B. Upper surface greased

C. Both surface ungreased

D. Lower surface greased

Answer: A

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67. Transpiration is very low during storms due to

A. Presence of moisture in wind

B. Low temperature during storms

C. High velocity of winds

D. none of these

Answer: C

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68. Spraying of phenyl mercuric acetate results in:

A. Reduced transpiration

B. Increased photosynthesis

C. Increased respiration

D. Increased transpiration

Answer: A

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69. Guard cells in monocot leaves are :

A. Dumb-'bell shaped

B. Kidney Shaped

C. Isodiametric

D. none of these

Answer: A

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70. Potassium ion exchange hypothesis of opening and closing of stomata was proposed by:

A. Steward

B. Sayre

C. Levitt

D. Bose

Answer: C

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71. In plants water rises upwards through:

A. Phloem

B. Cambium

C. Cortex

D. Xylem

Answer: D

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72. Ascent of sap takes place through

A. Tracheary elements

B. Cortical cells

C. Sieve elements

D. None of these

Answer: A

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73. Water will be absorbed by the root hairs when:

A. Conc. of solutes in the cell sap is high

B. Conc. Of solutes in the soil is high

C. Plant is rapidly respiring

D. None of these

Answer: A

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74. Guttation occurs through:

A. Stomata

B. Hydathode

C. Trichome

D. Nectaris

Answer: B

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75. The rate of transpiration can be measured with the help of:

A. Auxanometer

B. Refractometer

C. Spectrophotometer

D. Potometer

Answer: D

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76. Which of the following plant keeps its stomata open during night and closed during the day:

A. Wheat

B. Orchid

C. Tea

D. Cactus

Answer: D

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77. Guttation occurs through:

A. Stomata

B. Hydathode

C. Lenticel

D. Cuticle

Answer: B

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78. Transpiration is mainly a process of:

A. Diffusion

B. Imbibition

C. Osmosis

D. Plasmolysis

Answer: A

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79. Upward movement of water in plants is called

A. Root pressure

B. Ascent of sap

C. Transpiration

D. imbibition

Answer: B

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80. Oozing out of water drops from injured edges or tips of leaves of herbaceous plants is called:

A. Transpiration

B. Bleeding

C. Guttation

D. Translocation

Answer: C

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81. Water absorbed by root hairs from the soil is:

A. Gravitational water

B. Surface water

C. Capillary water

D. Hygroscopic water

Answer: C

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82. Cells are connected by plasmodesmata, the system is called:

A. Apoplast

B. Symplast

C. Vacuolar

D. Hydroplast

Answer: B

83. Guttation occurs through:

A. Guard cells

B. Hydathodes

C. Stomata

D. Lenticel

Answer: B

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84. Passive absorption of water by the root system is the result of:

A. Force created in the cells of the root

B. Increased respiratory activity in the root

C. Tension on the cell sap due to transpiration

D. Osmotic force in the shoot system

Answer: C

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85. The rate of transpiration will be very less in situation where:

A. Ground water is sufficiently available

B. Wind is blowing with a very high velocity

C. Environment is very hot and dry

D. Relative humidity is very high

Answer: D

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86. Which of the following in guard cell is responsible for opening of stomata ?

A. Decrease in CO_2 concentration and decrease in H^+ ion concentration

B. Increase in CO_2 concentration and increase in H^+ ion concentration

C. More free H^+ ion and less Cl^- ion

D. More free H^+ ion and more Cl^- ion

Answer: B

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87. Which of the following is used as an antitranspirant ?

A. Cobalt chloride

B. Potassium

C. Mercury

D. Phenyl mercuric acetate

Answer: D

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88. Water is lost in a liquid state in some plants through hydathodes. These hydathodes:

A. Remain closed at night

B. Remain closed during day

C. Remain always open

D. Do not show any specificity in opening and closing

Answer: C

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89. Exudation of sap at the end of stem is a manifestation of_____pressure.

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90. 0.5 M NaCl solution has____osmotic pressure than 0.5 M sucrose solution.

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91. A cell placed in a hypertonic solution 'will show __(endosmosis/exosmosis).

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92. Mineral nutrients required for plant growth and development and their deficiency causes disfunctioning are called _____.

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93. The water potential and osmotic potential of pure water at normal atmospheric pressure are respectively:

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94. Organic food materials in plants are translocated through _____.

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95. The pressure exerted by cell wall to balance turgor pressure is called_____.

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96. In the thermodynamic terminology the osmotic pressure is equivalent to _____ potential concept but opposite in sign of its value.

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97. When a cell is placed in hypotonic solution, water moves into the cell , this flow is called_____.

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98. The form and structure of growing cell are maintained because of_____.

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99. A membrane which permits selective movement of molecules through it , is called:

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100. DPD in thermodynamic terminology is known as ____.

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101. The water potential and osmotic potential of pure water at normal atmospheric pressure are respectively:

Watch Video Solution

102. Phenomenon of plasmolysis occurs when:

Watch Video Solution

103. Water potential and osmotic potential of pure water is:

Watch Video Solution

104. The most acceptable theory of ascent of sap is_____.

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105. The hydrostatic pressure developed in the roots is called_____pressure.

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106. The_____ pressure of guard cells is responsible for the opening of stomata.

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107. _____is the number of stomata per square mm of leaf surface.

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108. More is the leaf area____is the rate of transpiration.

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109. Transpiration is _____proportional to humidity.

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110. Guttation occurs through the pores called_____.

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111. During passive absorption,water is absorbed as a result of tension created by _____.

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112. _____is the exudation of waterdrops from the tip or margins of lamina at the vein ends.

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113. Metabolic energy of the cell is utilized in_____absorption of water.

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114. In plants water is translocated upward through ___tissue.

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115. When plant absorbs the water from the soil, the water potential of root cell is_____.

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116. Plants lose water by the processes of_____and____'

Watch Video Solution

117. Loss of water through epidermis of aerial parts of the plants is reduced by_____.

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118. Absorption of any liquid without formation of a solution due to hydrophilic colloids.

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119. Process of coming out of water from a plant cell when placed in a hypertonic solution.

Watch Video Solution

120. If water enters in a cell, the pressure exerted by its swollen protoplast is:

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121. What is the degree of migration of substances through a membrane.

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122. Movement of molecules from a region of higher concentration to the region of lower concentration.

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123. The free energy per mole -of a substance in a chemical system.

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124. Process of coming out of water from a plant cell when placed in a hypertonic solution.

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125. Cells are connected by plasmodesmata, the system is called:

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126. The fraction of water held by particles of soil surfaces.

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127. Pressure develops in the tracheary elements of xylem as a result of metabolic activities of root.

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128. Difference between chemical potential of water at any point in a system and that of pure water under standard conditions.

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129. Oozing out of water drops from injured edges or tips of leaves of herbaceous plants is called:

Watch Video Solution

130. Loss of water from aerial parts of plants in form of water vapour.

Watch Video Solution

131. "When a cell is placed in isotonic solution water will come out of it by exosmosis" . Is it true or false .

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132. The elastic cell wall exerts a counter pressure to osmotic'pressure called wall pressure.

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133. Water moves across the cells along solute potential gradient.

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134. Swelling of wooden doors during rainy season is due to osmosis.

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135. Endosmosis increases osmotic pressure.

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136. Exudation of water through the cut ends of stem is due to transpiration pull.

A. True

B. False

C.

D.

Answer: Root pressure

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137. Necrosis is the main symptom of nitrogen deficiency in plants.

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138. Adjacent plant cells are connected by protoplasmic strands called gap junctions.

A. True

B. False

C.

D.

Answer: Plasmodesmta

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139. In passive absorption of water, the concerned force develops from the root.

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140. Cohesion-tension theory explains stomatal movement.

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141. WRITE SHORT NOTES ON: Osmosis

Watch Video Solution

142. WRITE SHORT NOTES ON: Plasmolysis

Watch Video Solution

143. WRITE SHORT NOTES ON: Guttation

Watch Video Solution

144. WRITE SHORT NOTES ON: Antitranspirants

Watch Video Solution

145. WRITE SHORT NOTES ON: Wall pressure

Watch Video Solution

146. WRITE SHORT NOTES ON: Imbibition

Watch Video Solution

147. WRITE SHORT NOTES ON: Isotonic solution

Watch Video Solution

148. WRITE SHORT NOTES ON: Apoplast

Watch Video Solution

149. WRITE SHORT NOTES ON: Symplast

Watch Video Solution

150. WRITE SHORT NOTES ON: Water potential

Watch Video Solution

151. WRITE SHORT NOTES ON: Root pressure

Watch Video Solution

152. WRITE SHORT NOTES ON: Ascent of sap

Watch Video Solution

153. WRITE SHORT NOTES ON: Transpiration pull

Watch Video Solution

154. DISTINGUISH BETWEEN : Osmosis and plasmolysis.

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155. DISTINGUISH BETWEEN : Osmosis and imbibition

Watch Video Solution

156. DISTINGUISH BETWEEN : Passive and active water absorption

Watch Video Solution

157. DISTINGUISH BETWEEN : Apoplast and symplast

Watch Video Solution

158. DISTINGUISH BETWEEN : Transpiration and evaporation

Watch Video Solution

159. DISTINGUISH BETWEEN : Transpiration and guttation

Watch Video Solution

160. What is apoplast symplast concept ? Describe the mechanism of water movement in plants.

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161. Describe the mechanism of water absorption in plants.

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162. Write the theories on mechanism of translocation of water in plants.

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163. What is transpiration ? Describe the mechanism of stomatal movement in plants. What are the advantages and disadvantages of transpiration?

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