BIOLOGY

BOOKS - A2Z BIOLOGY (HINGLISH)

TRANSPORT IN PLANTS

Section A Topicwise Questions Topic 1 Means Of Transport Diffusion Facilitated Diffusion Ac

1. Read the following statements and find out the incorrect statement.

A. Different proteins in the membrane play a major role in both active as well as passive transport.

B. Pumps are the proteins that use energy to transport substances across the cell membrane from a low concentration to high concentration (downhill transport).

C. Like enzymes the carrier protein is very specific in what it carrier across the membrane.

D. Diffusion whether fcilitated or not-takes place only along a gradient and do not use energy.

Answer: B

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2. Pumps are related to

A. Simple diffusion

B. Facilitated diffusion

C. Active transport

D. Osmosis

Answer: C

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3. Find the incorrect match among the following.

	Property	Simple diffusion	Facilitated diffusion	Active transport
(A)	Respond to inhibitors	No	Yes	Yes
(B)	Under hormonal regulation	No	No	Yes
(C)	Takes place along a gradient	Yes	Yes	No
(D)	Downhill transport	Yes	Yes	No

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4. Which of the following substances find itself difficult to pass through the membrane ?

A. Lipophilic

B. Hydrophilic

C. Hydrophobic

D. Both A and C

Answer: B

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5. The diffusion of any substance across a membrane does not depend on

A. Solubility in lipids

B. Concentration gradient

C. Input of energy

D. Both A and B

Answer: C

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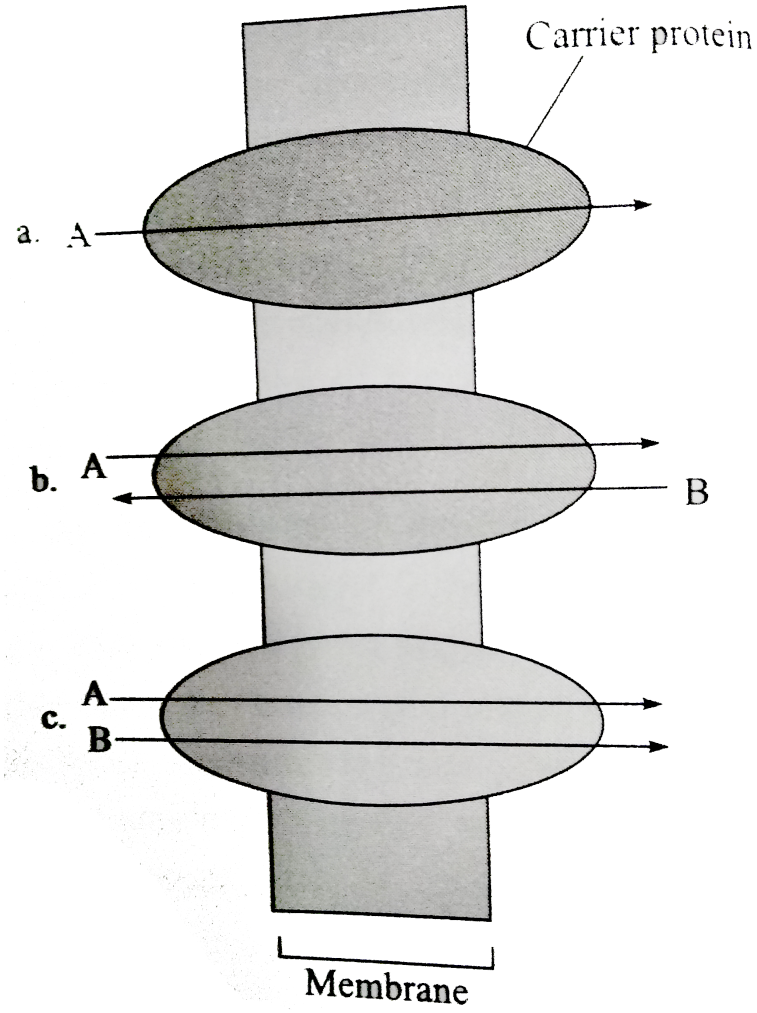
6. Recognies the figure and find out the correct matching.



A. a-Uniport, b-Symport, c-Antiport

B. b-Uniport, c-Symport, b-Antiport

C. a-Uniport, c-Symport, b-Antiport

D. c-Uniport, a-Symport, a-Antiport

Answer: C

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7. The mapping of the pahtway of carbon assimilation in photosythesis earned Noble Prize in 1961 to

A. J.A Bassham

B. Melvin Calvin

C. Hatch and Slack

D. T.W. Engelmann

Answer: B

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8. Calvin along with J.A. Bassham studied reactions in green plants forming sugar and other substances from raw materials like carbon dioxide, water and minerals by labelling the carbon dioxide with

A. O^{18}

B. C^{12}

C. C^{14}

D. O^{16}

Answer: C

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9. The principles of photosynnthesis as established by ..... Are, at present, being used in studies in solar energy research

A. J.A. Bassham

B. Melvin Calvin

C. Hatch and Slack

D. T.W. Engelmann

Answer: B

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10. Over small distances, substances moved by

A. Diffusion

B. Cytoplasmic streaming

C. Active transport

D. All of the above

Answer: D

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11. Transport over longer distances proceeds through the vascular system -xylem and phloem-is called

A. Transpiration

B. Imbibition

C. Translocation

D. Transformation

Answer: C

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12. Rate of diffusion is affected by the

A. Pressure and temperature

B. Concentration gradient

C. Membrane permeability

D. All of the above

Answer: D

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13. Read the following statements and find out the incorrect statement.

A. In diffusion, molecules move in a random fashion, the net result being substances moving from regions of higher concentration to regions of lower concen-tration.

B. Diffusion is a slow process and is not dependent on a living system.

C. Diffusion is obvious in gases and liquids, but diffusion of slids rather than in solids is more likely.

D. Movement by diffusion is passive as no energy expenditure takes place.

Answer: C

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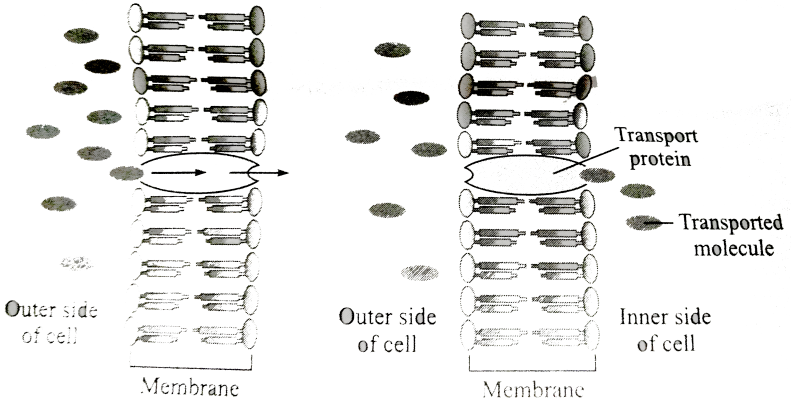
14. The following figure shows :



A. Simple diffusion

B. Facilitated diffusion

C. Active transport

D. Osmosis

Answer: B

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15. The proteins that form huge pores in the outer membranes of

A. Mitochondria

B. Plastids

C. Some bacteria

D. All of the above

Answer: D

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16. Fill in the blands:

Property	Simple diffusion	Facili-tated dif-fusion	Active transport
Uphill transport	No	...a...	...b...
Highly selective	...c...	Yes	...d...

A. a-Yes, b-Yes, c-No, d-Yes, e-No, f-No, g-Yes, h-No

B. a-No, b-Yes, c-Yes, d-No, e-Yes , f-Yes, g-No, h-Yes

C. a-No, b-Yes, c-No, d-Yes, e-No, f-Yes, g-No, h-Yes

D. a-No, b-Yes, c-No, d-Yes, e-No, f-No, g-No, h-Yes

Answer: C

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17. water channels are made up of

A. Eight similar types of aquapoins

B. Six similar types of aquaporins

C. Six different types of aquaporins

D. Eight different types of aquaporins

Answer: D

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18. Fill in the blands:

(a) Some carrier of transport protenis allow diffusion only if two types of molecules move together. In ..... 1 ..... Both molecules, cross the membrane in the same directions, in ..... 2 ..... They move in opposite directions.

(b) When a molecule moves across a membrane independent of other molecules, the process is called .... 3 .....

A. 1-Uniport, 2-Symport, 3-Antiport

B. 3-Uniport, 1-Symport, 2-Antiport

C. 2-Uniport, 3-Symport, 1-Antiport

D. 3-Uniport, 2-Symport, 1-Antiport

Answer: B

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19. Uniport, Symport and antiport are the types of

A. Simple diffusion

B. Facilitated diffusion

C. Active transport

D. Osmosis

Answer: B

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20. Movement of materials against concentration gradient is due to

A. Active transport

B. Passive transport

C. Diffusion

D. Osmosis

Answer: A

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Section A Topicwise Questions Topic 2 Plant Water Relations Water Potential Osmosis Plasmoly

1. Read the following statements and find out the incorrect statement.

(a) Water is essential for all physiological activities of the plant and plays a very important role in all living organisms.

(b) A mature corn plant absorbs almost five litres of water in a day.

(c) A mature plant absorbs water equal to its own weight in about 3 hours.

(d) Water is often the limiting factor for plant growth and productivity in both agricultural and natural environments.

(e) A watermelon has over 92 percent water, most herbaceous plants have only about 10 to 20 percnet of its fresh weigth as dry matter.

A. b,c,e

B. a, b, d

C. a, c, e

D. b, c, d

Answer: A

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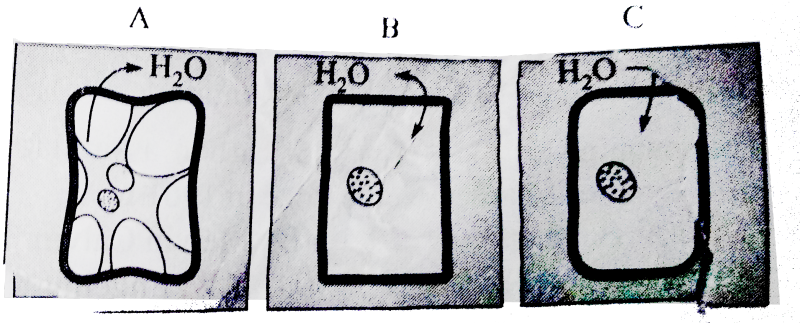
2. Recognies the figure and find out the correct matching.



A. a-flaccid, b-turgid, c-plasmolysed

B. b-flaccid, c-turgid, a-plasmolysed

C. c-flaccid, a-turgid, b-plasmolysed

D. c-flaccid, b-turgid, a-plasmolysed

Answer: B

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3. Terrestrial plants take up huge amount of water daily but most of it is lost to the air through

A. Photosynthesis

B. Respiration

C. Transpiration

D. Translocation

Answer: C

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4. Which of the following components is/are determinant(s) of water potential ?

A. Osmotic pressure

B. Solute potential

C. Pressure potential

D. Both B and C

Answer: D

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5. Read the following statements and find out the incorrect statement.

A. In liquid and gaseous form water molecules are in random motion that is both rapid and constant.

B. The greater the concectration of water in a system, the greater is its kinetic energy or water potential.

C. Net movement of water molecules occurs from the system with higher energy to the one with lower energy.

D. Water will move from the sytem containing water at lower water potential to the one having higher water potential.

Answer: D

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6. The magnitude of the lowering in water potential due to dissolution of a solute is called

A. Solute potential

B. Pressure potential

C. Osmotic pressure

D. Turgor pressure

Answer: A

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7. If a pressure greater than atmospheric pressure is applied to pure water or a solution, its water potential

A. Increases

B. Decreases

C. Remains same

D. Becomes zero

Answer: A

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8. Read the following statements and find out the incorrect statement.

A. The more the solute molecles, the higher is the Ψ_s.

B. For a solution at atmospheric pressure, $\Psi_w = \Psi_s$

C. Solute potential is always negative while pressure potential is usually positive.

D. None of the above

Answer: A

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9. Find out the correct relationship.

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

B. $\Psi_p = \Psi_w + \Psi_s$

C. $\Psi_w = \Psi_p - \Psi_s$

D. $\Psi_w = \Psi_s + \Psi_p$

Answer: D

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10. Plant cells usually contain a large central vacuole, whose contents, the vacuolar sap, contribute to the

A. Solute potential of the cell

B. Pressure potential of the cell

C. Turgor pressure of the cell

D. Osmotic pressure of the cell

Answer: A

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11. The net direction and rate of osmosis depends on

A. Pressure gradient

B. Concentration gradient

C. Both A and B

D. None of the above

Answer: C

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12. During an experiment, if the tuber is placed in water, the cavity in the potato tuber containing a concentrated solution of sugar collects water due to

A. Plasmolysis

B. Osmosis

C. Imbibition

D. Facilitated diffusion

Answer: B

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13. Osmosis can be demonstrated by

A. Potato osmometer

B. Thistle funnel experiment

C. Cobalt-chloride papre method

D. Both A and B

Answer: D

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14. A semi-permeable membrane (SPM) could be a membrane of an egg. To get SPM, after removing the yolk and albumin through a small hole at one end of the egg and place the shell in

A. Concentrated solution of sucrose

B. Concentration solution of HCI

C. Dilute solution of HCI

D. Dilute solution of H_2SO_4

Answer: C

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15. In thistle funnel experiment, during osmosis the level of the solution in the funnel

A. Increases

B. Decreases

C. Remains same

D. First increases then decreases

Answer: A

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16. The external pressure applied from the upper part of the funnel to prevent osmosis is called

A. Osmotic potential

B. Osmotic pressure

C. Turgor pressure

D. Potential pressure

Answer: B

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17. Osmotic pressure is the function of the

A. Solvent concentration

B. Solute concentration

C. Both A and B

D. None of the above

Answer: B

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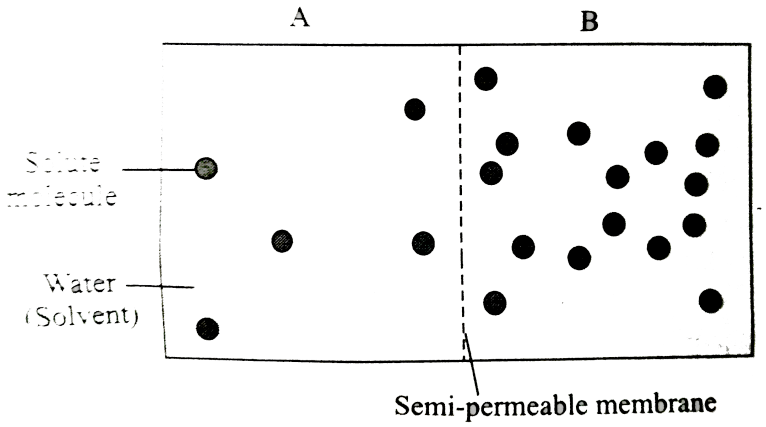
18. Reconise the figure and find out the correct statement.



(i) Solution of which chamber has a lower water potential?

(ii) Solution of which chamber has a lower solute potentia?

(iii) In which direction osmosis occurs?

(iv) At equilibrium which chamber will have lower water potential?

A. (i)-A, (ii) -B, (iii)-A to B, (iv)-A

B. (i)-B, (ii)-A, (iii)-B to A, (iv)-B

C. (i)-B, (ii)-B, (iii)-A to B, (iv)-same

D. (i)-A, (ii)-A, (iii)-A to B, (iv)-same

Answer: C

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19. Read the following statements and find out the incorrect statement.

A. More the solute concentration in funnel, greater will be the pressure reqiured to prevent water form diffusuing in it.

B. Numerically osmotic pressure is eqiuvalent to osmotic potential, but the sign is opposite.

C. Osmotic pressure is negative pressure while osmotic potential is positive.

D. In plant cells, the cell membrane and tonoplast together are important determinants of movements of molecules in or out of the cell.

Answer: C

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20. If the external solution balances the osmotic pressure of the cytoplasm it is said to be .... a .... If the external solution is more concentrated, it is .... b .... and if the external solution is more dilute it is .... c ....

A. b-hypertonic, a-isotonic, c-hypotonic

B. c-hypertonic, a-isotonic, b-hypotonic

C. a-hypertonic, b-isotonic, c-hypotonic

D. b-hypertonic, c-isotonic, a-hypotonic

Answer: A

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21. During plasmolysis, water moves out from the cell, it is first lost from the

A. Cytoplasm and then from the vacuole

B. Vacuole and then from the cytoplasm

C. Cytoplasm and then from the nucleus

D. Nucleus and then from the cytoplasm

Answer: A

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22. The process of plasmolysis is usually

A. Reversible

B. Irreversible

C. Active

D. Both A and C

Answer: A

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23. When the cells are placed in a hypotonic solution, water diffuses into the cell causing the cytoplasm to build a pressure against the wall that is called

A. Solute potential

B. Pressure potential

C. Osmotic pressure

D. Turgor pressure

Answer: D

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24. The pressure exerted by the protoplaste due to entry of water against rigid walls that is called

A. Solute potential

B. Pressure potential

C. Osmotic pressure

D. Turgor pressure

Answer: B

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25. Which of the following pressure is ltimetely responsible for enargement and extension gowth of cells ?

A. solute potential

B. Pressure potential

C. Osmotic pressure

D. Turgor pressure

Answer: D

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26. Read the statements and find out the incorrect statement

A. Both osmosis and imbibitions are special types of diffusion.

B. If it were not for the pressure due to imbibition seedlings would not have able to emerge out of the soil in the open

C. For any substance to imbibe any liquid affinity between the adsorbent and the liquid is a pre-requiste,

D. None of above

Answer: D

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27. Solute potential of a solution is always

A. $= 0$

B. < 0

C. > 0

D. > 1

Answer: B

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28. Movmens of water from higher water potential to lower water potential through a semipermeable membrane is called

A. Osmosis

B. Diffusion

C. Plasmolysis

D. Imbibition

Answer: A

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29. Water potential increases due to

A. Evaporation

B. Additions os solutes

C. Pressure

D. Afforestation s

Answer: C

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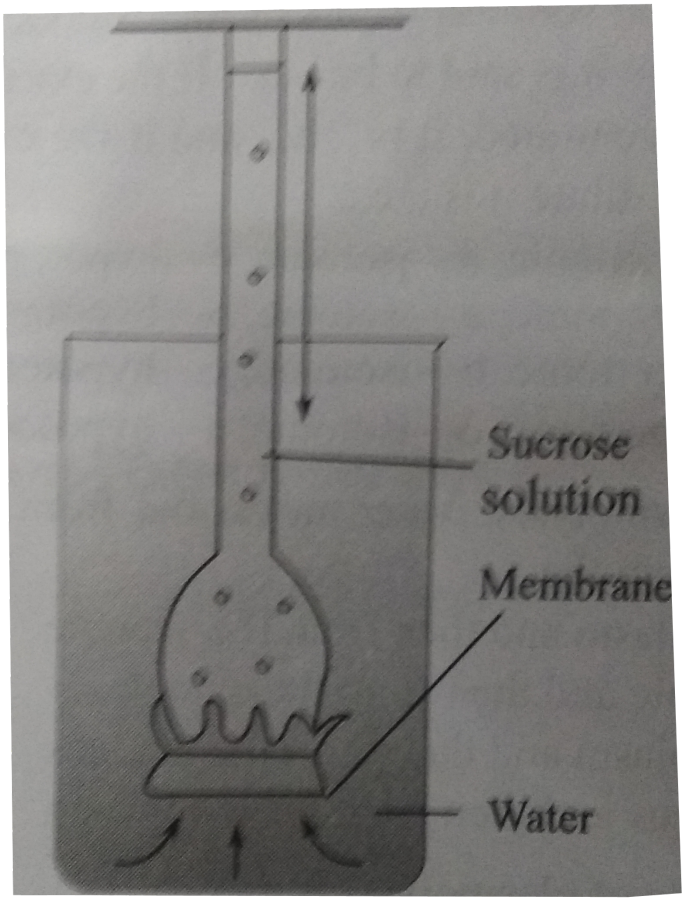
30. Recognise the figure and find out the correct statements



This figure shows

A. The demonstration of rate by thistle funnle experment.

B. The demonstration of the rate of osmosis by potato osmometer

C. The demonstration of osmosis by thistle funnel expeiment

D. The domonstration of translocation mineral solutes up a plant.

Answer: C

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31. Water potentials of pure water and its soultion are

A. 0 and 1

B. 0 and 0

C. 0 and more than one

D. 0 and less than one

Answer: D

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32. In thistle funnel experiment, if sugar is added to beaker after the stoppage of osmosis, then

A. Level of solution in beaker lowers

B. Level of solution in thistle funnel rises up

C. Level of solution in breaker /remains same

D. Level of solution in thistle funnel lowers

Answer: D

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33. Dry wooden stakes in cracks of a rock and soaked will develop pressure that will split the rock. The phenomenon is

A. Osmotic preesure

B. Imbibitions

C. Turgor pressure

D. Deplasmolysis

Answer: B

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34. Which one a unit of measurement of water potential /osmotic pressue

A. Kelvin

B. Joule

C. Pascal

D. Litre

Answer: C

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35. Potential energy of water is

A. Osmotic potential

B. Water potential

C. Gravity potential

D. Pressure potetnial

Answer: B

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36. Osmotic pressure of a soultion is

A. More than that of pure solvent

B. Less than that of pure solvent

C. Variable dependidng upon concentration

D. Equal to that pure solvent

Answer: A

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37. Water potential is maximum in case of

A. Pure water

B. 2% glucose

C. 10% glucose

D. 10% NaCl

Answer: A

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38. Which one is not connected with transport across the cell membrane

A. Osmosis

B. Active transport

C. Diffusion

D. Surface tenstion

Answer: D

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39. Amount by which water potential is reduced due to presence of solute is called

A. Pressure potnetial

B. Solute potential

C. Matric potential s

D. None of the above

Answer: B

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40. Movements of water through semipermeable membrane produce n

A. Wall pressure

B. Suction pressure

C. Osmotic pressure

D. Turgor pressure

Answer: D

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41. Adding solute to pure water will cause development of

A. Positive water potential

B. More positive water potential

C. More negative water potential

D. Negative water potential

Answer: D

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

A. T.S.

B. D.P.D.

C. O.P.

D. W.P.

Answer: B

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43. Water potential and osmotic potential of pure water are

A. Zero and zero

B. 100 and zero

C. 100 and 100

D. Zero and 100

Answer: A

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44. If a cell A with OP 10 bars and TP 4 bars is connected to cells, B, C and D having OP and TP respectively 4 and 4, 10 and 5 and 7 and 3 bars, the flow of water will be

A. C to A, B and D

B. B to A,C and D

C. D to A,B and C

D. A to B,C and D

Answer: B

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45. Osmotic potntial is depicted as

A. $(-)$

B. $(+)$

C. (XX)

D. $(\div)$

Answer: A

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46. dry seeds, when placed in water sell up due to

A. Imbibition

B. Absorption

C. Diffustion

D. Adsorption

Answer: A

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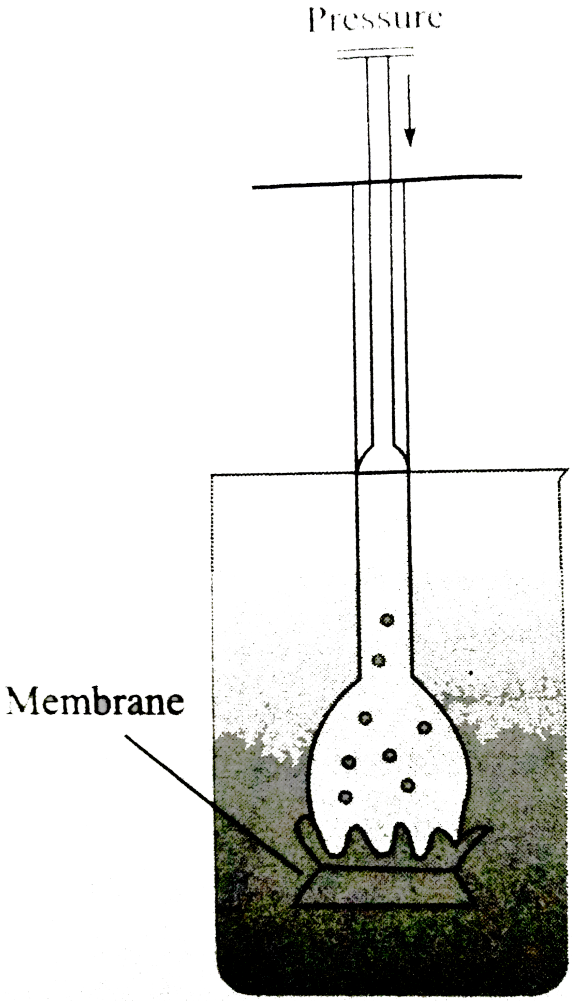
47. The pressure shown in the figure is called



A. Osmotic potential

B. Osmotic pressure

C. Turgor pressure

D. Suction pressure

Answer: B

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48. "Osmosis is flow of solution from higher concentration to solution of lower concentration through semi-permeable membrane" What is incorrect in the statements ?

A. Exact concentration of solution is not given

B. Character simipermeable membrae in not given

C. Flow fo solution is not possible through semipermeable membrane

D. All of the above

Answer: C

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49. A cell placed in a solution gets deplasmolysed.The solution is

A. Hypotonic

B. Hypertonic

C. Isotonic

D. Ditonic

Answer: A

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50. If cell gets reduced in size when placed in solution, the solution is

A. Hypertonic

B. Hypotonic

C. Weak

D. Saturated

Answer: A

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51. A bottle filled with previously moistened Mustard seeds and water was screw capped tightly and kept in a corner. It blew up suddenly after about half an hour. The phenomenon involved

A. Diffusion

B. Imbibition

C. Osmosis

D. D.P.D.

Answer: B

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52. 0.1 M solution of soulte (non-electrolyte) will have a water potntial of

A. -2.3 bars

B. Zero

C. 2.3 bars

D. 22.4 bars

Answer: A

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Section A Topicwise Questions Topic 3 Long Distance Transport Of Water

1. In a elegant experiment, if a twig bearing white flowers placed in coloured water and had watched it turn color. This experiment very easily demonstrates that

A. The path of water movement is through xylem

B. The path of water movement is through phloem

C. The path of food transport is through phloem

D. Both A and C

Answer: A

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2. Cytoplamic streaming may aids in

A. Symplastic movement

B. Apoplastic movement

C. Both A and B

D. None of the above

Answer: A

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3. Read the following statements and ifnd out the icorrect statement.

A. The apoplast does not provide any barrier to water movement and water movement is thorugh mass flow.

B. Symplastic movmentsis relatively slower.

C. Cytoplasmic streaming is observed in cell of the Hydrilla leaf, the movement of chloroplast due to streaming is easily visible

D. The movment of water through the root layers is ultimately apoplastic in the endodermis.

Answer: D

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4. Long distance transport of substances within a plant can not be done byb diffusion alone. Diffusition is a slow processs. The movement of am molecule across a typical plant cell about $50\mu m$ takes approximately

A. 2.5 minutes

B. 2.5 hours

C. 2.5 second

D. 5.0 minutes

Answer: C

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5. Long-distance transport of water, minerals, and food is generally carried out by

A. Diffusion only

B. Active transport only

C. Bulk flow system or mass flow system

D. Cytoplasmic streaming supplemented by active transport

Answer: C

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6. Bulk flow can be achieved through a hydrostatic pressure gradient. Negative hydrostatic pressure gradient and positive hydrostatic pressure gradient are seen in

A. Suction through a straw and a garden hose respectively

B. A garden hose and suction through a straw respectively

C. Cobalt chloride paper and polyethene respectively

D. Blotting paper and cobalt chloride paper respectively

Answer: A

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7. The bulk movement of substances through the conducting or vascular tissues of plants is called

A. Translocation

B. Transpiration

C. Transamination

D. Transportation

Answer: A

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8. Mineral salts, some organic nitrogen and hormones are translocated by

A. Xylem

B. Phloem

C. Both xylem and phloem

D. Sieve tube elements

Answer: A

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9. Water is absorbed along with mineral solutesm, by the root haris

A. Partly by diffusion and partly by active transport

B. Partly by facilited diffusion and partly by active transport

C. Purely by diffusion

D. Purely by active transport

Answer: C

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10. Once water is absorbed by the root haris, it can move deeper into root layers by two distinct pathways

A. One in xylem and second in phloem

B. One is active and second is passive

C. One is apoplast and second is symplast

D. One is tracheid and second is vessel

Answer: C

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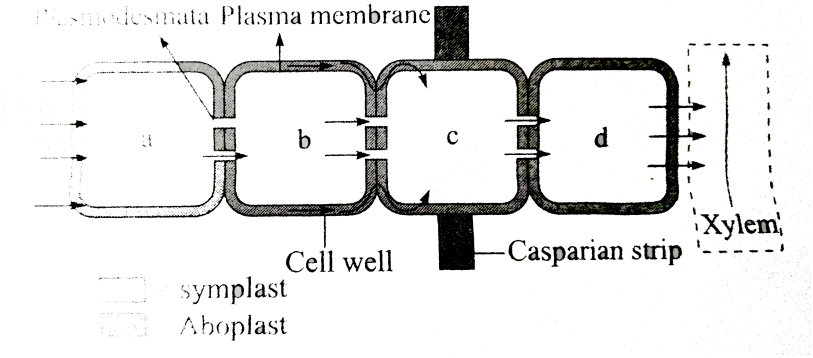
11. Recognise the figure and find out the correct matching.



A. b-Cortex, d-pericycle, a-epidermis, c-endo-dermis

B. a-Cortex, b-pericycle, c-epidermis, d-endo-dermis

C. d-Cortex, c-pericycle, b-epidermis, a-endo-dermis

D. b-Cortex, c-pericycle, a-epidermis, d-endo-dermis

Answer: A

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12. Apoplast is the system of adjacent cell walls that is continuous throughout the plant execpt at the

A. Plasmodesmata

B. Vessel elements

C. Casparian strips of endodermis

D. Tracheids

Answer: C

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13. Which pathway involves cell wall and intercellular spaces?

A. Vascular pathway

B. Protoplast pathway

C. Symplast pathway

D. Apoplast pathway

Answer: D

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14. Force of cohesion develops due to

A. Attraction between similar molecules

B. Attraction between different molecules

C. Surface tension at the interface

D. All of the above

Answer: A

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15. Path of water movement from soil to xylem is

A. $\text{Metaxylem} \rightarrow \text{Protoxylem} \rightarrow \text{Cortex} \rightarrow \text{Soli} \rightarrow \text{Root hair}$

B.

$\text{Cortex} \rightarrow \text{Root hair} \rightarrow \text{Endodermis} \rightarrow \text{Pericycle} \rightarrow \text{Protoxyle} \rightarrow \text{M}$

C. `"Soli"to"Root

hair"to"Cortex"to"Endodermis"to"Pericycle"to"Protoxylem"to"Metaxylem"

D.

$\text{Perocycle} \rightarrow \text{Soli} \rightarrow \text{Root hair} \rightarrow \text{Cortex} \rightarrow \text{Endodermis} \rightarrow \text{Protoxy}$

Answer: C

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16. When concentration of solutsion is low in the soli, absorption of water is

A. Stopped

B. Increased

C. Retarded

D. Normal

Answer: B

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17. Select the correct ones. a -Apoplastic movement of water occurs exclusively through cell wall. b-Solutes increase free enregy of water or water potential, c-Symplastic movement occurs through plasmodesmata d-Membrane permeability depends upon membrane coposition as well as chemical nature of solute

A. a and b only

B. b and d only

C. a,c and d only

D. a, b and d only

Answer: C

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18. In order to demonstrate root pressure, the plant is given a cut

A. At the tip

B. Transition zone

C. A few centimetres above the soil

D. A few centimetres belwo the soil

Answer: C

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19. In root hair, water entres due to

A. Diffusion

B. W.P.

C. T.P.

D. O.P.

Answer: A

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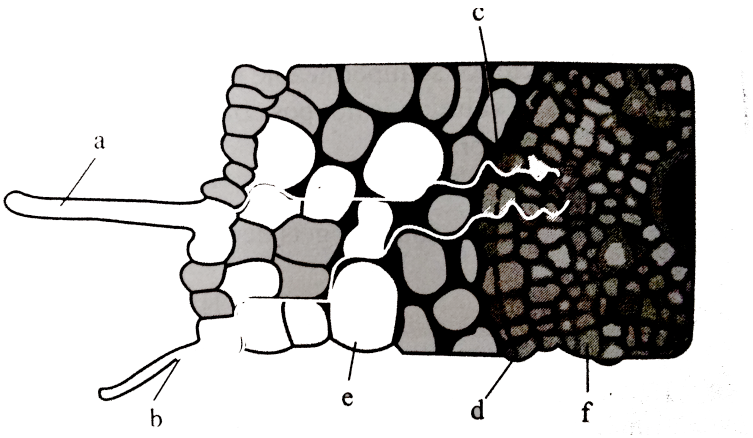
20. Recognise the figure and find out the correct matching.



A. cortex, f-pericycle, d-endodermis, c-casparian strip, b-symplastic path, a-apopastic path

B. e-cortxe, f-pericycle, c-endoderims, d-casparian strip, a-symplastic path, b-apopastic path

C. f-cortxe, e-pericycle, d-endodermis, c-casparian strip, b-symplastic path, a-apoplastic path

D. f-cortex, e-pericycle, c-endodermis, d-casparian strip, b-symplastic path, a-apoplastic path

Answer: B

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21. Water potential in leaf tissue is 'positive' (near zore) during

A. Low transpiration

B. Excessive absorption

C. Excessive transpiration

D. Guttaation

Answer: D

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22. Water in plants is transported by or diffusion of sap takes place through

A. Cambium

B. Imbibition

C. Xylem

D. Active absorption

Answer: C

Watch Video Solution

23. Watre entering root due to diffusion is a part of

A. Endocytosis

B. Imbibition

C. Passive absorption

D. Active absorption

Answer: C

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24. Water will be absorbed by root hairs when the extemal medium is

A. Hypotonic

B. Hypertonic

C. Isotonic

D. Viscous

Answer: A

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25. The principal pathway of water translocation in angiosperms is

A. Sieve cells

B. Sieve tube elements

C. Xylem vessel

D. Xylem and phloem

Answer: C

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26. Guttation is mainly due to

A. Root pressure

B. Osmosis

C. Transpiration

D. Imbibition

Answer: D

Watch Video Solution

Section A Topicwise Questions Topic 4 Transpiration Uptake And Transport Of Minerals Nutrients

1. Plant (intemal) factor(s) that afffect traspiration include(s)

A. Number and distribution of stomata

B. Percent of open stomata

C. Canopy structure and water status of the plant

D. All of the above

Answer: D

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2. The traspiration driven ascent of xylem sap depends mainly on the following physical properties of water

A. Adhesion

B. Cohesion

C. Surface tension

D. All of the above

Answer: D

Watch Video Solution

3. In plants capillarity is aided by the

A. Small diameter of vessels

B. Large diameter of tracheids

C. Small diameter of tracheids

D. Both A and C

Answer: D

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4. Plant obtain their carbon and most of their oxygen from

A. Water in the soil

B. Minerals in the soil

C. CO_2 in the atmosphere

D. All of the above

Answer: C

Watch Video Solution

5. Plant obtain their hydrogen repuriement from

A. Water in the soil

B. Minerals in the soil

C. CO_2 in the atmosphere

D. All of the above

Answer: A

Watch Video Solution

6. Ions are absorbed from the soil by

A. Passive transport

B. Active transport

C. Both active and passive transport

D. Imbibition

Answer: C

Watch Video Solution

7. All minerals cannot be passively absorbed by the roots. The reason for this may be

A. Minerals are present in the soil as charged particles (ions) which cannot move across cell membranes

B. The concentration of minerals in the soil is usually lower than the concentration of minerals in root

C. Endodermal cells have suberin deposition

D. Both A and B

Answer: D

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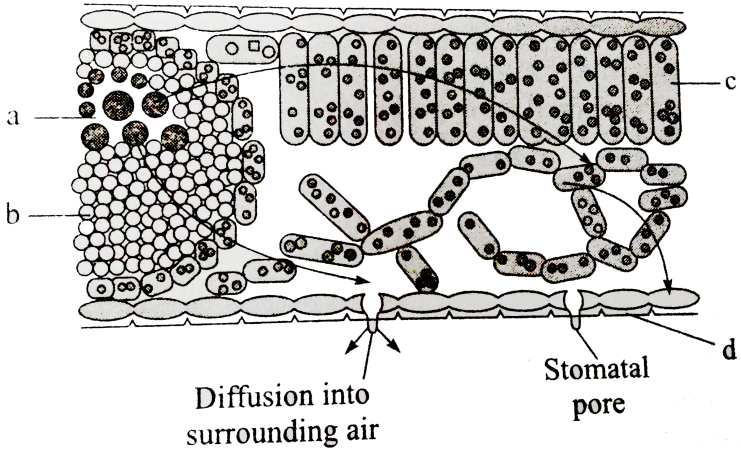
8. Recognies the figure and find out the correct matching.



A. c-palisade, d-guard cell, a-xylem, b-phloem

B. c-palisade, d-guard cell, b-xylem, a-phloem

C. d-palisade, c-guard cell, a-xylem, b-phloem

D. d-palisade, c-gurad cell, b-xylem, a-phloem

Answer: A

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

A. Root pressure

B. Tranpiration in leaves

C. Activity of aquaporins

D. Increase in imbibition pressure in root cells

Answer: B

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10. Stomatal opening is under the control of

A. Epidermal cells

B. Palisade cells

C. Spongy parenchyma cells

D. Guard cells

Answer: D

Watch Video Solution

11. Plants loose most of water through leaves by

A. Respiration

B. Guttation

C. Photosynthesis

D. Transpiration

Answer: D

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Section A Topicwise Questions Topic 5 Phloem Transport Flow From Source To Sink

1. Unloading of mineral inos ouccurs at the fine vein endings through

A. Diffusion

B. Active uptake

C. Both A and B

D. Imbibition

Answer: C

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2. Element(s) most readily mobilised is/are

A. Potassium and phosphorus

B. Nitrogen and sulphur

C. Calcium

D. Boht A and B

Answer: D

Watch Video Solution

3. Element which is strutural component asd not remobilised is/are

A. Potassium and phosphorus

B. Nitrogen and sulphur

C. Calcium

D. Boht A and B

Answer: C

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4. Source and sink relationship is variable and depending on the

A. Season

B. Plant's need

C. Vascular tissue

D. Both A and B

Answer: D

Watch Video Solution

5. The accepted mechanism used for the translocation of sugars from source to sink is called the

A. Pressure flow hypothesis

B. Mass flow hypothesis

C. Girdling experiment

D. Both A and B

Answer: D

Watch Video Solution

6. The loading and unloading of food (phloem sap) to and from the sieve tube cells is

A. Active and passive respectively

B. Passive and passive respectively

C. Passive and active respectively

D. Active and active respectively

Answer: D

Watch Video Solution

7. Read the following statements and find out the incorrect statement.

A. Glucose is prepared at the source by photosynthesis which is converted to sucrose.

B. Loading at the source produces a hypotonic condition in phloem

C. Loading of the phloem sets up a water potential gradient that facilitates the mass movement in the water

D. Phloem tissue is composed of sieve tube calls, which form long columns with holes in their end walls called sieve plates.

Answer: B

Watch Video Solution

8. Mass flow of water occurs due to which properties of water

A. Adhesion

B. Cohesion

C. Surface tension

D. Both A and B

Answer: D

Watch Video Solution

9. On a day, when there is plenty of atmospheric moisture, a small soft-stemmed plant cut horizontally near the base with a sharp blade early in the morning. Some dorps of solution ooze out of the cut stem, this comes out due to the

A. Transpiration pull

B. Positive root pressure

C. Negative root pressure

D. Negative hydrostapressure gradient

Answer: B

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10. Read the following statements and find out the incorrect statement.

A. Transpiration pull does not account for the majority of water transport, most plants meet their need by root pressure

B. Water loss in liquid phase is called guttation while in vapour phase is called transpiration

C. Besides the loss of water vapour in transpiration, exchange of oxygen and carbon dioxide in the leaf also oc curs through stomata.

D. When guard cells becomes flaccid, stomata closes and if turgid, stomata opens.

Answer: A

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11. Fill in the blanks:

(1) Despite the absence of a heart or a circulatory system in plants the flow of water upward through the xylem in plants can achieve fairly high rates up to .....a.....metres per hour.

(2) Less than .....b..... Percent of the water reaching the leaves is used in photpsynthesis and plant growth.

(3) Water loss from a leaf can be studied by using .....c..... .

(4) Most researchers agree that water is mainly .....d..... through the plant.

A. a-10, b-5, c-potato osmometer, d-pushed

B. a-5, b-10, c-cobalt chloride paper, d-pulled

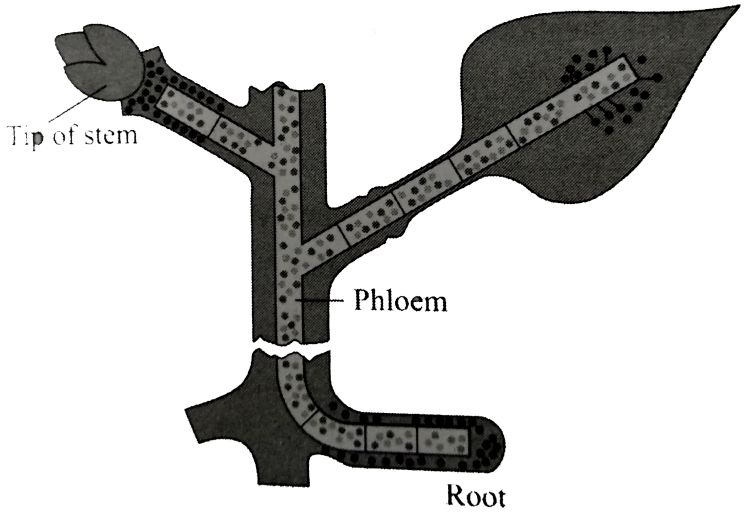
C. a-15, b-1, c-cobalt chloride paper, d-pulled

D. a-10, b-1, c-cobalt chloride paper, d-pushed

Answer: C

Watch Video Solution

12. Recognise the figure and find out the correct statement.



The following figure shows

A. The mechanism of the absorption and translocation of water and minerals

B. The demonstration of osmosis

C. The translocation of food through phloem

D. Transpiration pull for ascent of sap

Answer: C

Watch Video Solution

Section B Assertion Reasoning Questions

1. Read the assertion and reason carfully to mark the correct option in question.

Assertion: Facilitated diffusion and active transport show characteristics of being highly selective, they are liable to saturat, respond to inhibitors and are under hormonal regulation.

Reason: Membrane proteins are reponsible for both facilitated diffusion and active transport.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A

View Text Solution

2. Assertion :- Diffusion is one of the most important process of plants.

Reason:- Diffusion is the only means for gaseous movement within plant body.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A

Watch Video Solution

3. Read the assertion and reason carfully to mark the correct option in question.

Assertion: If some solutions have a lower water potential than pure water.

Reason: If some solute is dissolved in pure water, the solution has fewer free water and the concentration of water decreases, reducing its water potential.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A

View Text Solution

4. Read the assertion and reason carfully to mark the correct option in question.

Assertion: Imbibition is a type of diffusion.

Reason: In imbibition, water movement is against concentration gradient.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: C

View Text Solution

5. Read the assertion and reason carfully to mark the correct option in question.

Assertion: Xylem vessels and tracheids are the part of apoplast.

Reason:Xylem vessels and tracheids are non-living conduits.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A

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6. Read the assertion and reason carfully to mark the correct option in question.

Assertion: The diffusion rate depends on the size of substanes. Smaller molecules diffuse faster.

Reason: Substances soluble in lipids diffuse through the membrane slower.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: C

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7. Read the assertion and reason carfully to mark the correct option in question.

Assertion: Root endodermis has the the ability to actively transport ions

in one direction only.

Reason: Endodermal cells have suberin depostion.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A

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8. Read the assertion and reason carfully to mark the correct option in question.

Assertion: Transport proteins of endodermal cells are control points.

Reason: At control points plant adjusts the quantity and types of solutes that reach the xylem.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A

View Text Solution

Section D Chapter End Test

1. Which of the following scientiste is credited with the mechanism of opening and closing of stomata related to K^+ exchange?

A. Levitt

B. Sayre

C. Scarth

D. Lloyd

Answer: A

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2. Where does transpiration cohesion pull theory works

A. Active absorption

B. Passive absorption

C. Active and passive absorption

D. Apoplastic movements

Answer: B

Watch Video Solution

3. Water absorption of root hairs occurs until

A. Concentration of water in the cell sap is higher

B. Salt concentration in cell sap is higher

C. They are separated from the soil by a selectively permeable membrane

D. Water potential is lower

Answer: D

Watch Video Solution

4. Which is produced during water stress that brings stomatal closure?

A. Ethylene

B. Abscisic acid

C. Ferulic acid

D. Coumarin

Answer: B

Watch Video Solution

5. Transpiration facilitates

A. Electrolyte balance

B. Absorption of water by roots

C. Opening of stomata

D. Excretion of minerals

Answer: B

Watch Video Solution

6. An RBC and a plant cell having same O.P. are placed in distilled water.

A. None undergoes any change

B. Plant cell swells up and bursts but there is no change in RBC

C. RBC swells up and bursts plant cell remains abuot the same size

D. Both decrease in size and cllapse

Answer: C

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7. Root pressure is maximum when

A. Transpiration is high and absorption is low

B. Transpiration is very low and absorption is high

C. Transpiration is very high and absorption is high

D. Transpiration and absorption both are low

Answer: B

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8. Rate of transpiration higher than rate of water absorption shall cause

A. Growth

B. Leaf fall

C. Wilting

D. Death

Answer: C

Watch Video Solution

9. A twig kept in water having some salt remains fresh for longer period due to

A. Decrease in bacterial degradation

B. Exosmosis

C. Decrease in transpiration rate

D. Absorption of more water

Answer: C

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10. Root hair absorbs water from soil through

A. Turgor pressure

B. Ion exchange

C. Osmosis

D. None of the above

Answer: C

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11. Prolonged water-logging kills plant due to

A. Stoppage of root respiration

B. Dilution of soil nutrients

C. Dilution of plant cell sap

D. Leaching of nutrients

Answer: A

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12. Water is lost through hydathodes. Hydathodes

A. Remain closed at night

B. Remain closed during day

C. Remain always open

D. Remain open during day

Answer: C

Watch Video Solution

13. Influx of K^+ inos into guard cells and efflux of H^+ ions from guard cells lead to

A. Exosmosis

B. Plasmolysis

C. Closing of stomata

D. Opening of stomata

Answer: D

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14. Who is related to ascent of sap?

A. Mc Chung

B. J.C. Bose

C. A. Fleming

D. J. Lederberg

Answer: B

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15. Guttation is the process of elimination of water from plants through or Guttation occurs from or The pores in leaves through which water comes out in the form of droplets are called or A specialized multicellular structure in leaves which excretes water droplets is called as

A. Stomata

B. Hydathades

C. Lenticels

D. Wounds

Answer: B

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16. Ringing/girdling experiment was first performed by

A. Hartig

B. Strassburger

C. Godlewski

D. Bose

Answer: A

Watch Video Solution

17. Match the columns and choose the correct combination.

a.	Relay Pump Theory	p.	Stocking
b.	Transpiration— cohesion Theory	q.	Bose
c.	Mass Flow Theory	r.	Godlewaki
d.	Pulsation Theory	s.	Dixon and Joly
		t.	Munch

A. a-r, b-q, c-t, d-p

B. a-q, b-p, c-t, d-r

C. a-r, b-s, c-t, d-q

D. a-s, b-r, c-p, d-q

Answer: C

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18. Which one keeps its stomata open during and closed

A. Cactus

B. water Lily

C. Ivy

D. Hibiscus

Answer: A

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19. Stomata of CAM plants

A. Are always open

B. Open during the day and close at night

C. Open during night and close during the day

D. Never open

Answer: C

Watch Video Solution

20. Presence of moisture in the atmosphere

A. Increases rate of transpiration

B. Decreases rate of transpiration

C. Does not affect rate of transpiration

D. Transpiration becomes when

Answer: B

Watch Video Solution

21. Wilting in plants occurs when

A. Phloem is blocked

B. Xylem is removed/blocked

C. Pith is removed

D. A few leaves are removed

Answer: B

Watch Video Solution

22. Match the columns and find the correct combination.

	Column I		Column II
a.	Ganong's Potometer	(i)	Rate of growth
b.	Cobalt chloride paper	(ii)	Rate of transpiration
c.	Pfeffer's auxanometer	(iii)	Differential transpiration
d.	Porometer	(iv)	Opening and closing of stomata

A. a-(i), b-(ii), c-(iii), d-(iv)

B. a-(iv), b-(i), c-(iii), d-(ii)

C. a-(ii), b-(iii), c-(i), d-(iv)

D. a-(iii), b-(i), c-(iv), d-(ii)

Answer: C

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23. If turgor pressure becomes equol to osmotic pressure

A. Water leaves the cells

B. Water enters the cells

C. No exchange of water takes place

D. Solute pass out of the cell

Answer: C

Watch Video Solution

24. Cells absorb water through

A. Osmosis only

B. Imbibition only

C. Both osmosis and imbibition

D. None of the above

Answer: C

Watch Video Solution

25. Who had said that "transpiration is a necessary evil"

A. Bose

B. Steward

C. Anderson

D. Curtis

Answer: D

Watch Video Solution

26. Sir J.C. Bose proposed in theory of ascent of sap known as

A. Pulsation theory

B. Transpiration pull theory

C. Relay pump theory

D. Capillary force theory

Answer: A

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27. DPD is abbreviated form of

A. Daily photosynthetic deficit

B. Daily phosphorus deficit

C. Daily pressure deficit

D. Diffusion pressure deficit

Answer: D

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28. Swelling of wooden frames during rains is caused by

A. Endosmosis

B. Imbibition

C. Capillarity

D. Osmosis

Answer: B

Watch Video Solution

29. If choesion-tension transpiration pull theroy is correct break in water column should

A. Increase water content of leaves

B. Increase rate of photsynthesis

C. Cause wilting of leaves

D. Have no effect at all

Answer: C

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30. The term water potential was coined by

A. Sayre

B. Von Mohl

C. Lloyd

D. Slatyer and Taylor

Answer: D

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31. The movement of water from one cell of cortex to the next in the root is due to

A. Water potential gradient

B. Chemical potential gradient

C. Accumulation of inorganic salts in the cells

D. Accumulation of organic salts in the cells

Answer: A

Watch Video Solution

32. During absorption of water by roots, the water potential of cell sap is lower than that of

A. Pure water and soil solution

B. Neither pure water nor soil solution

C. Pure water but higher than that of soil solution

D. Soil solution but higher than that of pure water.

Answer: A

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33. Guard cells differ from epidermal cells in having

A. Mitochondria

B. Vacuoles

C. Cell wall

D. Chloroplasts

Answer: D

Watch Video Solution

34. Diffusion of water through selectively permeable membrane is

A. Diffusion

B. Imbibition

C. Osmosis

D. Translocation

Answer: C

Watch Video Solution

35. DPD is equal to

A. $OP \times TP(WP)$

B. $OP + TP(WP)$

C. $OP - TP(WP)$

D. $TP(WP) - OP$

Answer: C

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36. Cell 'A' with O.P. = 10 atm and T.P.= 5, and Cell 'B' with O.P. = 15 atm and T.P. = 12 atm. The flow of water will be

A. From A to B

B. Equal flow

C. From B to A

D. No flow.

Answer: C

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37. Transpiration differs from evaporation in

A. Rate of water loss

B. Transpiration is a physiological process while evaporation is a physical process while

C. Transpiration is a physical process while evaporation is a physiological proces

D. Frequency of water loss.

Answer: B

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38. Conversion of starch to organic is required for

A. Stomatal opening

B. Stomatal closing

C. Stomatal formation

D. Stomatal activity

Answer: A

Watch Video Solution

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

A. Closes completely

B. Opens partially

C. Opens fully

D. Remains unchanged

Answer: A

Watch Video Solution

40. A semipermeable membrane allows the diffusion of

A. Solutes

B. Solvent

C. Both solvent and solutes

D. None of the above

Answer: B

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41. Rate of transpiration is high in

A. C_3 plants

B. C_4 plants

C. CAM plants

D. Both C_3 and C_4 plants

Answer: A

Watch Video Solution

42. Mass flow hypothesis was first described by

A. Swanson

B. Munch

C. Curtis

D. De Vries

Answer: B

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43. Girdling experiment is not successful in monocots due of

A. Vascular bundles are not arranged in a ring

B. Vascular bundles are arranged in a ring

C. Vascular bundles are radial

D. None of the above

Answer: A

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44. Terms apoplast and symplast were first used by

A. Munch

B. Clark

C. Fisher

D. Dixon

Answer: A

Watch Video Solution

45. Water lost through transpiration is

A. Pure water

B. Rich in organic solutes

C. Rich in dissolved salts

D. All of the abvoe

Answer: A

Watch Video Solution

46. Common between guard cells and mesophyll cells is

A. Dumbbell shaped

B. Differentially thick walls

C. Presence of chloroplasts

D. Uniformly thin cell wall

Answer: C

Watch Video Solution

47. Which is not associated with ascent of sap in tall trees?

A. Continuity of water column

B. Cohesion and adhesion of water molecules

C. Transpiration pull

D. Pressure of tracheary elements

Answer: D

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48. An internal factor in traspiration is

A. CO_2

B. O_2

C. N_2

D. Stomata

Answer: D

Watch Video Solution

49. Rate of transpiration is related to

A. Light and temperature

B. Light, temperature, atmospheric humidity and wind

C. Light temperature and wind

D. Soil and temperature

Answer: B

Watch Video Solution

50. Maximum transpiration takes place from

A. Stems

B. Leaves

C. Roots

D. Flowers and fruits

Answer: B

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Others

1. A cell increases in volume if the external medium is

A. Hypotonic

B. Hypertonic

C. Isotonic

D. None of the above

Answer: A

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2. A and B cells are contiguous. Cell A has OP=10 atm, TP=7 atm and DPD=3 atm. Cell B has OP=8 atm. TP=3 atm and DPD=5 atm. The result would be

A. No movement of water

B. Hypertonic

C. Movement of water from A to B

D. Movement of water from B to A

Answer: C

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3. The most widely accepted theory for ascent of sap in trees is

A. Capillarity

B. Role of atmospheric pressure

C. Pulsating action of living cell

D. Transpiration pull and cohesion theory of Dixon and Joly

Answer: D

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4. Water avbsorbed by root in order to meet the requirement of transpiration is due to

A. Transpiration pull

B. Osmosis

C. Imbibition

D. Plasmolysis

Answer: B

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5. Which of the following statement are not true?

(a) In CAM plants, stomata open during dark and remain closed during

the day.

(b) Role of Na^+ in stomatal opening is now universally accepted.

(c) Water potential of root cells is higher than water potential of soil.

(d) Capillarity theory most accepted theory of water movement through plants.

(e) Wall of xylem vessels made up of lignocelluloes has strong affinity for water molecules.

A. b,c and e

B. b,c and d

C. a, b and c

D. b and c

Answer: B

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6. Water column does not rupture during ascent in tracheary elements due to

A. Weak gravitational pull

B. Transpiration pull

C. Lignified thick walls

D. Cohesion and adhesion

Answer: D

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7. Which of the following is used to determine the rate of transpiration in plants

A. Porometer/hygrometer

B. Potometer

C. Auxanometer

D. Tensiometer/Barometer

Answer: B

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8. Most water flow in root occurs via apoplast as

A. Cortical cells are living cells

B. Cortical cells are loosely arranged

C. Cortical cells are thin walled

D. All of the above

Answer: B

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9. For the same amount CO_2 fixed s C_4 plant, in comparison with a C_3 plants, lose only

A. Half amount of water

B. Double amount of water

C. Equal amount of water

D. None of the above

Answer: A

Watch Video Solution

10. In the cell walls of the guard cells, cellulose microfibrils are oriented

A. Transversely

B. Tangentially

C. Radially

D. Obliquely

Answer: C

Watch Video Solution

11. Which of the following is done during ringing experiment

A. Bark is removed

B. Xylem is removed

C. Pith is removed

D. All of the above

Answer: A

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12. Attraction of water molecules to polar surfaces is known as

A. Adhesion

B. Tensile strenght

C. Surface tension

D. Cohesion

Answer: A

Watch Video Solution

13. Which of the following is not the purpose of transpiation?

A. Supplies water for photosynthesis

B. Maintains shape and structure of plants

C. Helps in translocation of sugar from source to sink

D. Transports minerals from soil to all parts of the plant

Answer: C

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14. Compared to 1M sucrose solution, the Ψ_ω of 1M sodium chloride solution is

A. High

B. Same

C. None of the above

D. Lower

Answer: C

Watch Video Solution

15. Which of the following factors is most important in regulation of transpiration?

A. Relative humidity

B. Temperature

C. Light

D. Wind

Answer: B

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16. Cohesion theory of ascent of sap was proposed by

A. Munch

B. Stephen Hales

C. Dixon and Joly

D. Bose

Answer: C

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17. The force responsible for raising water in 100 ft tall plants is

A. Transpiration pull

B. Root pressure

C. Air pressure

D. Capillary action

Answer: A

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18. Stomata open when guard cells swell due to

A. Decreased water potential

B. Increased water potential

C. Endosmosis by efflux of K^+ ions

D. Endosomosis by influx of hydrogen ions

Answer: A

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19. Stomatal opening and closing is due to

A. Change in turgidity of guard cells

B. Celludose microfibrils of guard cells are oriented radially

C. The inner wall of each guard cell is thick and elastic

D. All of the above

Answer: D

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20. Which of the following is a rapid type of water absorption?

A. Active absorption

B. Passive absorption

C. Continuous absorption

D. Pulsating absorption

Answer: B

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21. Which is not directly connected with ascent fo sap?

A. Cohesion theory

B. Root pressure

C. Apopast-symplast

D. Capillarity

Answer: C

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22. Tracheide are less efficient than vessels due to

A. Absence of closed end walls

B. Uneven thickenings

C. Casparian strips

D. Presence of tapering end walls

Answer: D

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23. Difference between osmotic pressure and turgor pressure is

A. DPD

B. Tranpiration pull

C. Osmotic potential

D. Solute potential

Answer: A

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24. The space between plasma membrane and cell wall of a plasmolysed cell surrounded by a hypertonic solution is occupied by

A. Isotonic solution

B. Hypotonic solution

C. Hydertonic solution

D. Water

Answer: C

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25. Which is not antitranspirant?

A. Low viscosity resin

B. BAP

C. Silicon oil

D. PMA

Answer: B

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26. The process by which water is absorbed by solid like colloids causing them to increase in volume is

A. Plasmolysis

B. Diffusion

C. Osmosis

D. Imbibition

Answer: D

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27. Stomatal opening is influenced by

A. N_2 concentration, CO_2 concentration and light

B. CO_2 concentration, temperature and light

C. N_2 concentration, light and temperature

D. CO_2 concentration, N_2 concentration and temperature

Answer: B

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28. Which of the following is not a purpose of transpiration

A. Prevents loss of water

B. Helps in absorption and transport

C. Makes cells rigid

D. Cools leaf surfaces

Answer: A

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29. phloem sap is mainly made of

A. Water and sucrose

B. Water and minerals

C. Oligosaccharides and hormones

D.

Answer: A

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

A. 130 feet

B. 130 metres

C. 230 feet

D. 230 metres

Answer: B

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31. Guttation differs from transpiration in

A. Control by stomata

B. Occurrence during daytime

C. Occurrence in vapour form

D. Occurrence in liquid form

Answer: D

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32. The ability to rise in thin tubes and Ability to resist a pulling force are respectively referred to as

A. Tensile strength and capillarity

B. Cohesion and adhesion

C. Capillarity and tensile strength

D. Adhesion and capillarity

Answer: C

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33. The osmotic expanison of a cell kept in water is chiefly regulated by

A. Ribosomes

B. Mitochondria

C. Vacuoles

D. Plastids

Answer: C

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34. The hydrostatic pressure developed inside the cell on the cell wall due to endosmosis is called

A. Wall pressure

B. Osmotic pressure

C. Suction pressure

D. Turgor pressure

Answer: D

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35. In nature, the orchid seeds germinate only in association with

A. Myxomycetes

B. Blue green algae

C. Actiononmycetes

D. Mycorrhiza

Answer: D

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36. The mechanism in which the rate of the solute movements increases by interaction of transmembrane proteins is termed as

A. Endocytosis

B. Facilitated diffusion

C. Simple diffusion

D. Active transport

Answer: B

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37. A column of water within xylem vessels of tall trees does not break under its weight because of

A. Tensile strength of water

B. Lignification of xylem vessels

C. Positive root pressure

D. Dissolved sugars in water

Answer: C

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38. Root pressure develops due to

A. Low osmotic potential in soil

B. Passive absorption

C. Increase in transpiration

D. Active absorption

Answer: D

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39. A protoplast is a cell

A. Without nucleus

B. Undergoing division

C. Without cell wall

D. Without plasma membrane

Answer: C

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40. Which of the following statement is correct?

A. Organic and mineral nutrients undergo multi-directional transport.

B. Water transport in phloem is unidirectional.

C. Transport of minerals occurs in xylem and is multi-directional.

D. During senescence nutrients move from healthy plant parts of senescing regions.

Answer: A

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41. Which one give the most valid and recent explanation for stomatal movements?

A. Starch hydrolysis

B. Guard cell photosynthesis

C. Transpiration

D. Potassium influx and efflux

Answer: D

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42. When a plant is girdled or in a ring girdled plant

A. The shoot and root die together

B. Neither root nor shoot will die

C. The shoot dies first

D. The root dies first

Answer: D

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43. Transpiration and root pressure cause water to rise in plants by

A. Pushing it upward

B. Pushing and pulling it, respectively

C. Pulling it upward

D. Pulling and pushing it, respectively

Answer: D

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44. Water vapour comes out from the plant leaf through the stomatal opening . Through the same stomatal opening carbon dioxide diffurses into the plant during photosynthesis Reason out the above statements using one of following options

A. Both processes cannot happen simultaneously.

B. Both processes can happen together because the diffusion coefficient of water and CO_2 is different.

C. The above processes happen only during night time.

D. One process occurs during day time and the other at night.

Answer: B

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45. Which is essential for the growth of root tip ?

A. Ca

B. Mn

C. Zn

D. Fe

Answer: A

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46. Which of the following facilitates opening of stomatal aperture?

A. Decresase in turgidity of guard cells

B. Radial orientation of cellulose microfibrils in the cell wall of guard cells

C. Longitudinal orientation of cellulose microfibrils in the cell wall of guard cells

D. Contraction of outer wall of guard cells

Answer: B

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47. The water potential of pure water is

A. Less then zero

B. More then zero but less than one

C. More than one

D. Zero

Answer: D

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48. Stomatal movement is not affected by

A. Temperature

B. Light

C. O_2 concentration

D. CO_2 concentration

Answer: C

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49. In rainy season, the doors get wet due to

A. imbibition

B. diffusion

C. transpiration

D. respiration

Answer: A

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50. Which of the following helps in ascent of sap?

A. Root pressure

B. Transpiration

C. Capillarity

D. All of the above

Answer: D

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51. Hydroponics is

A. nutrient less culture

B. water less culture

C. soilless culture

D. none of these

Answer: C

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52. Leghaemoglobin helps in

A. nitrogenase fixation

B. portecting nitrogenase from O_2

C. destroys bacteria

D. transport of food in plants

Answer: B

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53. When a plant is girdled or in a ring girdled plant

A. Root dies first

B. Shoot dies first

C. Both die together

D. None of the above would die

Answer: A

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54. Water potential and osmotic potential of pure water are

A. zero and one

B. zero and zero

C. zero and more than one

D. zero and more than one

Answer: B

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55. Seed increase in its volume by the adsorption of water through

A. osmosis

B. plasmolysis

C. imbibition

D. diffusion

Answer: D

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56. Which of the following statements is/are not incorrect?

(i) Water and minerals, and food are generally moved by a mass or bulk flow system.

(ii) Bulk flow can be achieved either through a positive hydrostatic pressure gradient or a negative hydrostatic pressure gradient.

(iii) The bulk movement of substances through the conducting tissues of plants is called translocation.

(iv) Xylem translocates organic and inorganic solutes, mainly from roots to the aerial parts of the plants.

(v) Phloem translocates water, mineral salts, some organic nitrogen and hormones, from the leaves to other parts of the plants.

A. ii, iii and v

B. ii, iii, and iv

C. iv and v

D. ii and v

Answer: C

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57. Assertion : Water and mineral uptake by root hairs from the soil occure through applast until it reaches endodermis

Reason : Casparian strips in endodermis are suberized.

A. If both assertion and reason are true and the reason is a correct explanation of the assertion.

B. If both assertion and reason are true but reason is not a correct explanation of the assertion.

C. If the assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A

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58. Assertion : Rhoeo leaves contain anthocynanin pigaments in epidermal cells.

Reason : Anthocyanins are accessoryphotosynthetic pigments.

A. If both assertion and reason are true and the reason is a correct explanation of the assertion.

B. If both assertion and reason are true but reason is not a correct explanation of the assertion.

C. If the assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: C

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59. Assertion : Stomata are absent in submerged hydrophytes.

Reason : Respiration occurs by means of air chambers in submerged

plants.

A. If both assertion and reason are true and the reason is a correct explanation of the assertion.

B. If both assertion and reason are true but reason is not a correct explanation of the assertion.

C. If the assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: B

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60. Given below are assertion and reason. Assertion. When the ambient temperature is high and the soil contains exces of water, the plants tend to loss water in the form of droplets from lenticels Reason . Root pressure regulates the rate of loss of water from lenticels .

A. If both assertion and reason are true and the reason is a correct explanation of the assertion.

B. If both assertion and reason are true but reason is not a correct explanation of the assertion.

C. If the assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: D

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61. Assertion:Light is very important factor in transpiration.

Reason:It induces stomatal opening and darkness closing.Therefore, transpiration increases in light decreases in dark .

A. If both assertion and reason are true and the reason is a correct explanation of the assertion.

B. If both assertion and reason are true but reason is not a correct explanation of the assertion.

C. If the assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A

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62. Assertion:Waxy and cutin coating on plant parts reduce the transpiration.

Reason:These adaption are found in xerophytes.

A. If both assertion and reason are true and the reason is a correct explanation of the assertion.

B. If both assertion and reason are true but reason is not a correct explanation of the assertion.

C. If the assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A

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63. Assertion: Chemosynthesis is an autotrophic nutrition.

Chemoautorophs contain chlorophyll pigments.

A. If both assertion and reason are true and the reason is a correct explanation of the assertion.

B. If both assertion and reason are true but reason is not a correct explanation of the assertion.

C. If the assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: B

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64. Assertion:Upward movement of water is called ascent of sap.

Reason:Upward movement of water occurs through xylem and phloem.

A. If both assertion and reason are true and the reason is a correct explanation of the assertion.

B. If both assertion and reason are true but reason is not a correct explanation of the assertion.

C. If the assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: C

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65. Assertion: The chemical potential of pure water at normal temperature and pressure is zero.

Reason: In soluton, value of water potential is always positive.

A. If both assertion and reason are true and the reason is a correct explanation of the assertion.

B. If both assertion and reason are true but reason is not a correct explanation of the assertion.

C. If the assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: C

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