Q

The physical process involved in the release of molecular oxygen from leaves is :-

(A) Diffusion

(B) Transpiration

(C) Osmosis

(D) Capillarity

A

Ans [A]

Diffusion

Q

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Who is called father of plant physiologt ?

(A) K.V.Thimann

(B) Stephan Hales

(C) M.Calvin

(D) E.Rabinowitch

A

Ans [B]

Stephan Hales

Q

Who is called father of Indian plant physiology ?

(A) J.C.Bose

(B) Calvin

(C) R.Mishra

(D) K.K.Nanda

A

Ans [A]

J.C.Bose

One molar solution of which substance will have maximum O.P :-

(A) NaCl → electrolyte (B) Glucose

(C) Fructose (D) Starch

electrolyte, have ↑ O.P compared to non electrolyte

$O.P = mRTxI$

↳ For NaCl

A

Ans [A]

NaCl

Pieces of beet root do lose their colour in cold water , but do so in boiling water because :-

(A) The cell wall is killed in boiling water

(B) Hot water can enter the cells readily

(C) The plasma membrane gets killed in boiling water and becomes permeable

(D) The pigment is not soluble in cold water

A

Ans [C]

The plasma membrane gets killed in boiling water and becomes permeable

The movement of molecules from their higher concentration to lower concentration is called :-

(A) Osmosis

(B) Diffusion

(C) DPD

(D) DPG

A

Ans [B]

Diffusion

Q

Osmosis is the diffusion of a solution of a weaker concentration when both are separated by semipermeable membrane. What is error in the statement ?

(A) The movement of solvent molecule is not specified

(B) There is no mention of DPD

(C) Behavior of semi permeable membrane is not specified

(D) The exact concentration of solutions are not indicated

A

Ans [A]

The movement of solvent molecule is not specified

Q

What statement can be cited for 10% sodium chloride solution and 10% sugar solution present ?

(A) Both concentration of sodium

(B) The concentration of sodium chloride solution will be less than Concentration of Sugar solution

(C) The Op of sugar solution will be higher than OP of sodium chloride solution

(D) DPD of sodium chloride solution will be higher than DPD of sugar solution

Conc^n / solute $\propto$ O.P

A

Ans [D]

DPD of sodium chloride solution will be higher than DPD of sugar solution

If a plant cell is immersed in water ,the water continues to enter the cell until the :-

(A) Concentration of the salts is the same inside the cell as outside

(B) Cell bursts

(C) Concentration of water is the same inside the cell as out side

(D) Diffusion pressure deficit is the same inside the cell as out side

A

Ans [D]

Diffusion pressure deficit is the same inside the cell as out side

Q

If a cell swells, after being placed in solution, the solution is :-

(A) Neutral

(B) Hypotonic

less solute, more solvent

(C) Hypertonic

(D) Isotonic

A

Ans [B]

Hypotonic

Osmosis means :

(A) Solute from low concentration to higher

(B) Solute from higher concentration of low

(C) Solvent from low concentration solution to higher cone of solution

(D) Solvent from higher concentration solution to low concentration solution

A

Ans [C]

Solvent from low concentration solution to higher cone of solution

Q

If a cell is reduced in size (Shrinks) of placing in a solution of sugar , the solution is :-

(A) Hypertonic

plasmolysis

(B) Hypotonic

(C) Isotonic

(D) None of the above

A

Ans [A]

Hypertonic

Q

The process of osmosis involves :-

(A) Movement of solute through a semipermeable membrane

(B) Movement of solvent through a semipermeable membrane

(C) Movement of solution through semipermeable membrane

(D) None of the above

A

Ans [B]

Movement of solvent through a semipermeable membrane

Q

A cell increases in volume if the external medium is

(A) Hypotonic

(B) Slightly hypertonic

(C) Isotoic

(D) Much more concentrated than the protoplasm of the cell

A

Ans [A]

Hypotonic

Q

Osmosis involves diffusion of :-

(A) Suspended particles from higher to lower concentration

(B) Suspended particles from lower to higher concentration

(C) Water from more to less concentrated solution

(D) Water from less to more concentrated solution

A

Ans [D]

Water from less to more concentrated solution

Q

A cell placed in a strong salt solution will shrink because :-

(A) The cytoplasm will be decomposed

(B) Mineral salts will break the cell wall

(C) Salt will enter the cel

(D) Water will move out cell by exosmosis

A

Ans [D]

Water will move out cell by exosmosis

Q

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Grapes placed in salt solution shrink due to :-

(A) Imbibitions

(B) Endosmosis

(C) Exosmosis

(D) Osmosis

A

Ans [C]

Exosmosis

Q

Process of selective transmission of a liquid through semi permeable membrane is called :-

(A) Diffusion

(B) Osmosis

(C) Plasmolysis

(D) Transmission

A

Ans [B]

Osmosis

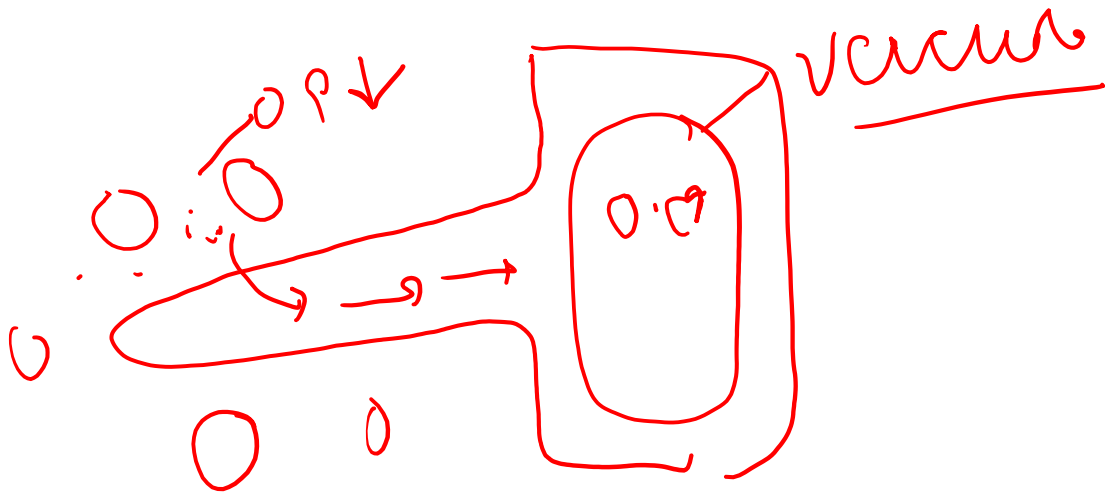
Water enters into the root hair from the soil its normal condition because the pressure of the soil solution :-

(A) Remains lesser than that of root hair sap

(B) Remains equal to that of root hair sap

(C) Remains higher than that of root hair sap

(D) And that of root hair sap remains zero



A

Ans [A]

Remains lesser than that of root hair sap

Q

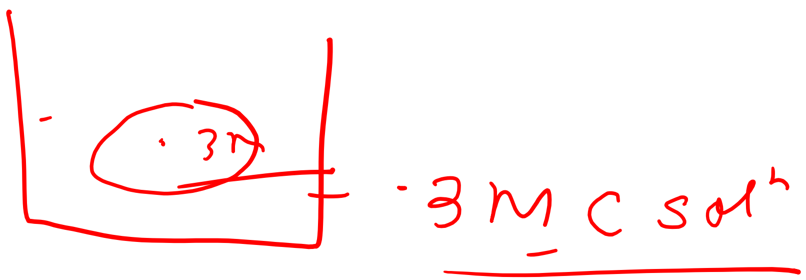
Potato slices are immersed in a series of solution of different osmotic concentrations .No change in volume or weight is observed with slices in a 0.3M solution. The osmotic concentration of vacuolar sap, therefore :-

(A) 0.3 M

(B) Greater than 0.3 M

(C) Less than 0.3 M

(D) Not related at all to the out side solution



A

Ans [A]

0.3 M

Q

Which help in maintaining form and structure of cells & soft parts of plants ?

(A) Osmotic pressure

(B) Turgor pressure

(C) Atmospheric pressure

(D) DPD

A

Ans [B]

Turgor pressure

Q

Who propounded the concept of osmosis ?

(A) Abbe Nollet

(B) Mayer

(C) Dixon and jolly

(D) Renner

A

Ans [A]

Abbe Nollet

Q

In terms of permeability , the cell wall and plasmalemma are :-

(A) Permeable and differentially permeable respectively

(B) Both semipermeable

(C) Semipermeable and permeable

(D) Both differentially permeable

A

Ans [A]

Permeable and differentially permeable respectively

Q

Plasma membrane controls :-

(A) Plasma membrane controls :-

(B) Passage of water and solutes in and out of the cell

(C) Passage of water and solutes in to the cell

(D) Movement of cell contents out the cell

A

Ans [B]

Passage of water and solutes in and out of the cell

Q

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Which process occurs against a concentration gradient of solute ?

(A) Diffusion

(B) Osmosis → low solute to high solute

(C) Transpiration

(D) Translocation

A

Ans [B]

Osmosis

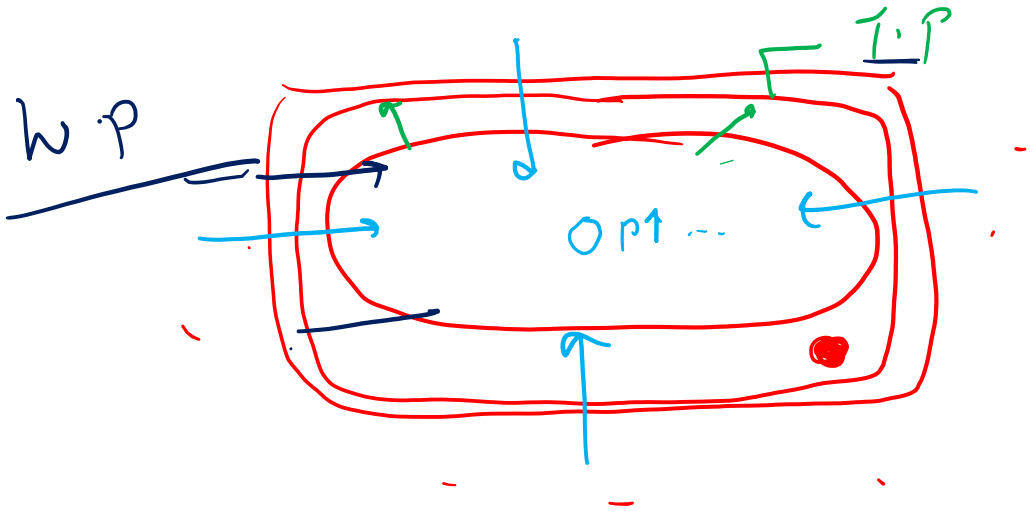
When a plant cell is placed in a hypotonic solution. Which of the following will not apply ?

(A) Wall pressure is decreased

(B) The cell become turgid

(C) Suction pressure of the cell sap will decrease

(D) Water potential of the cell sap will increase



A

Ans [A]

Wall pressure is decreased

When beet root slces washed and then placed in cold water. Anthocyanin does not come out, because plasma memeable is

(A) Diffferentially permeable to anthocyanin

(B) Dead structure

(C) Impermeable to anthocyanin (Solute

(D) Permeable to anthocyanin

A

Ans [C]

Impermeable to anthocyanin

Q

Osmotic pressure is highest in :-

(A) Xerophytes

(B) Lithophytes

(C) Halophytes

(D) Mesophytes

due to
↓ water

A

Ans [C]

Halophytes

If osmotic potential of a cell is -10 bars and its pressure potential is 5 bars , its water potential would be :-

(A) −5 bars

(B) 5 bars

(C) −10 bars

(D) 10 bars

$\psi_s = -10$ bars

$\psi_p = 5$ bars

$\psi_w = \psi_s + \psi_p$

$= -10 + 5$

$= -5$

A

Ans [A]

−5 bars

Q

Osmosis means =

(A) Movement of molecules from higher concentration to lower concentration

(B) Uptake of water by roots

(C) Passage of solution from a weaker solution to stronger solution across a semipermeable membrane

(D) Passage of solvent from a weaker to a stronger solution separated by a membrane

A

Ans [C]

Passage of solution from a weaker solution to stronger solution across a semipermeable membrane

The osmotic pressure of distilled water will be :-

(A) Minimum

(B) Maximum

(C) Higher than any solution

(D) Variable

O.P ∝ Solute conc

D.W : pure water No solute added

A

Ans [A]

Minimum

Q

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Tonoplast is : membrane of vacuole

(A) Permeable membrane

(B) Semi permeable membrane

(C) mpermeable membrane

(D) Selectively permeable membrane

A

Ans [D]

selectively permeable membrane

If in a cell suction pressure value is 30 atm . While osmotic pressure 42 atm . then calculate the turgidity developed in form of TP in the cell :-

(A) 12 atm.

(B) 72atm

(C) −12 atm.

(D) 1.4 atm.

DPD = S.P by Meyer → DPD = 30, OP = 42

DPD = OP − TP/WP

30 = 42 − TP

30 − 42 = − TP

−12 = − TP = TP = 12 atm

A

Ans [A]

12 atm.

If the molar concentration of given sugar solution is 0.3 M, find out the osmotic pressure of this solution :-

(A) 6.72 atm

(B) 67.2 atm

(C) 2.24 atm

(D) 5.60 atm

A

Ans [A]

6.72 atm

Q

Osmosis is the phenomenon expressed by :-

(A) Solutes present in the solution (B) Solution

(C) Semi-permeable membrane (D) O_2

A

Ans [C]

Semi-permeable membrane

The osmotic pressure of the cell is measured by :-

(A) Plasmolysis method

(B) Osmometer

(C) Molar concentration of the cell sap

(D) Deplasmolysis

A

Ans [A]

Plasmolysis method

Q

When grapes are placed in water, then which process occurs ?

(A) Plasmolysis

(B) Exosmosis

(C) Endosmosis

(D) None of the above

A

Ans [C]

Endosmosis

Q

Maximum osmotic pressure is found I :-

(A) Root hair

(B) Cortex cell of the root

(C) Passage cell of the root

(D) Mesophyll cell

A

Ans [D]

Mesophyll cell

Q

The osmotic pressure is due to :-

(A) Solute

(B) Semi permeable membrane

(C) Hypertonic solution

(D) Water

A

Ans [A]

Solute

Q

When a cell is fully turgid which of the following will be zero ?

(A) Turgor pressure

(B) Wall pressure

(C) Suctionpressure

(D) Osmoticpressure

A

Ans [C]

Suctionpressure

Q

Water from the soil enter in to the hairs on account of :-

(A) Turgor pressure

(B) Suction pressure or DPD

(C) Barometric pressure

(D) Osmotic pressure

A

Ans [B]

Suction pressure or DPD

Q

In a fully turgid cell the values of DPD, OP and TP should be :-

(A) DPD=10 atm, OP=15 atm, TP-5atm.

(B) DPD=5atm,OP=10a tm, TP=7atm.

(C) DPD-5atm,OP=7atm , TP=5atm.

(D) DPD=2atm,OP=15atm,TP-15-15atm.

A

Ans [D]

DPD=2atm,OP=15atm,TP-15-15atm.

Q

When the cell is placed in water, it takes water this is due to ?

(A) Osmotic pressure

(B) Srction pressure

(C) Diffusion

(D) Water potential and TP

A

Ans [B]

Srction pressure

What is the direction of the movement of water it two cells have the same OP but differ in TP?

(A) No net flow

(B) From lower T.P to higher TP

(C) From higher T.P. to lower TP

(D) Data insufficient

A

Ans [C]

From higher T.P. to lower TP

Q

The hydrostatic pressure developed in the cell is called :-

(A) Turgor pressure

(B) Wall pressure

(C) Osmotic pressure

(D) Suction pressure

A

Ans [A]

Turgor pressure

In fully cell :-

(A) DPD=WP

(B) DPD=OP

(C) DPD=OP-TP

(D) DPD=0

A

Ans [D]

$\mathrm{DPD}=0$

In flaccid cell :-

(A) DPD=WP

(B) DPD=OP

(C) DPD=0

(D) DPD=OP-TP

A

Ans [B]

$DPD = OP$

Q

Turgor pressure of a plasmolysed cell is :-

(A) Positive

(B) Zero

(C) Negative

(D) None of these

A

Ans [C]

Negative

Q

When water enters into in to a cell what happens to its OP. TP and DPD ?

(A) OP&TP increase & its DPD increase

(B) OP&DPD increase& decrease

(C) OP&DPD decrease &OP increase

(D) OP&DPD decrease & TP increase

A

Ans [D]

OP&DPD decrease & TP increase

Q

What is the value of DPD of a cell ?

(A) DPD=OP×TP

(B) DPD=OP+TP

(C) DPD=OP-TP

(D) DPD=OP÷TP

A

Ans [C]

DPD=OP-TP