Dr. OP Singh Classes

**Numerical Problems in Plant Water Relations**

1. Net movement of water is from

**(A) Low DPD to high DPD**  (B) High DPD to low DPD

(c) DPD gradient plays no role (d) None of the above

1. Diffusion pressure deficit is the amount by which two solutions differ in their

(A) T.P. (B) O.P.

**(c) D.P.** (D) W.P.

1. A cell is plasmolysed after being kept in hypertonic solution. What will be present between cell wall and plasmalemma ?

(A) Isotonic solution **(B) Hypertonic solution**

(C) Air (D) Hypotonic solution.

1. If' cell (a) with OP = 5 and 'TP 4 is

Surrounded by cells with OP = 3 and TP 1. What will be direction of water movement?

**(A) From cell (a) to other cells**  (B) From other cells to cell (a)

(C) Water will not move (D) Water will move up

1. DPD is equal to

(A) OP × TP (b) OP + TP

**(C) OP - TP**  (D) TP - OP.

1. When a cell is fully turgid, which of the following will be zero.

(A) Turgor pressure/pressure potential

(B) Wall pressure

**(C) Suction pressure/DPD/water potential**

(D) Osmotic pressure (solute pressure)

1. A cell placed in hypertonic solution shows shrinkage of its protoplasm due to

**(A) Plasmolysis**  (B) Endosmosis

(C) Osmosis (D) Imbibition,

1. Which is true of a fully turgid cell

(A) O.P. = D.P.D (B) O.P. = zero

**(C) D.P.D. = Zero** (D) T.P. = Zero.

1. Which is possible for a fully turgid ccll

(A) DPD = 10 aim, O.P. = 15 atm, T,P. = 5 atm

(B) D.P.D. = 0-2 atm, O.P. = 0 ' 7 atm, T.P. = 0-5 atm

**(C) D.P.D. = atm, O.P. = 15 atm, T.P. 15 atm**

(D) D.P.D. = 5 aim, O.P. = 12 atm, T.P.— 7 atm.

1. Water potential is equal to

(A) Ψs + O.P (B) ψs + T.P.

(C) ψp + ψw **(D) ψs + ψp**

1. Osmotic prcssure in a vacuolated plant cell is

(A) Equal to W.P. (B) Equal to T.P.

(C) More than D.P.D. **(D) Less than D.P.D.**

1. In a plant cell, O.P. is equal to

(A) T.P. — D.P.D. **(B) D.P.D. — T.P.**

(C) T.P. D.P. (D) D.P.D. + T.P.

1. Water movement between cells is due to

(A) T.P. (B) W.P.

**(C) D.P.D.**  (D) Incipient plasmolysis.

1. Under which condition does the D.P.D. become more than O.P.

(A) O.P. < T.P. (B) O.P. = T.P.

**(C) T.P. is negative** (D) OP > T.P.

1. D.P.D. is equal to

**(A) O.P. - W.P.** (B) O.P. + W.P.

(C) T.P. (D) O.P.

1. Cell 'A' with O , . P. = 10 atm and T.P. = 5 atm, is in contact with cell 'B' having 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.

1. If a cell 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) A to D, B and C (D) A to B, C and D.

1. Which one is correct ?

(a) Ψm = Ψp + ψs + ψw **(b) Ψw = Ψp + ψs + ψm**

(c) Ψp = Ψw + ψm + ψs (d) Ψw = Ψw + ψp + ψp +ψs

1. Solution A has — —30 bars and Ψp = 5 bars. Solution B has Ψs = -10 bars and Ψp = 0 atm. The two are separated by semipermeable membrane. Flow of water will be

**(A) B to A**  (b) A to B

(C) Equal in both directions (D)No flow of water.

1. When cell is fully turgid, its :

(A) O.P. = D.P.D. (B) OP = Zero

**(C) D.P.D = zero** (D) D.P.D. = OOP.

1. Value of water potential (Ψw) can be obtained by :

(A) π + WP **(b) Ψs + Ψp**

(c) Ψ + WP (d) π + TP.

1. Freshly cut potato chip is put into a strong solution of sugar. Later it is found to be:

**(a) Flaccid** (b) Longer

(c) Turgid (d) More full of starch

1. At full turgor in a cell

(A) Ψ = O and hence =Ψs = Ψw (B) Ψa = 0

(C) Ψ p = Ψ w **(D) Ψp = - Ψs= and Ψw = O.**

1. The term root pressure was coined by:

**(a) Stephen Hales**  (b) Atkins

(c) Renner (d) Kramer

1. The water potential and osmotic potential of pure water are .

(A) 100 and zero **(B) Zero and Zero**

(C) 100 and 100 (D) zero and 100.

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

(A) C to A, B and D (B) A and D to B and C

(C)A to B, C and D **(D) B to A, C and D.**

1. If cell A with O.P. =5 and TP. = 4 is surrounded by the cells with O.P. = 3 and T.P. = 1, what will be direction of water movement:

(a) Water will not move up (b) Water will move up

**(c) From cell A to other cells**  **(d) From other cells to cells A**

1. Which of the arbitrary values appear correct for a turgid cell?
2. D.P.D. 02 atm; O.P. 07 atm; T.P. 5 atm.
3. **D.P.D. 00 atm; O.P. 15 atm; T.P. 15 atm**.

(c) D.P.D 10 atm; O.P. 15 atm; T.P. 6 attn.

(d) D.P.D. 05 atm; O.P. 12 atm; T.P. 7 atm.

1. What is the D.P.D of cell, which is having osmotic pressure of 9 bars and turgor pressure 6 bars?

(a) 15 bars (b) – 3 bars

**(c) 3 bars**  (d) None of these

1. The actual pressure with which water enters into the cell is called:

(a) W.R (b) O.P.

**(c) DIP.D.** (d) Diffusion

1. When a cell is fully turgid its:

(a) O.P. = Zero (b) D.P.D. = O.P

**(c) D.P.D. = Zero**  (d) S.P. = T.F.

1. Which is the measure of free energy?

(a) D.P.D. (b) Osmotic pressure

(c) water potential (d) None of the above

1. Which is the measure of free energy?
2. D.P.D. (b) Osmatic pressure

**(c) Water potential** (d) None of these

1. What will be the direction of net osmotic movement of water if a solution 'A', enclosed in a semipermeable membrane, having an osmotic potential of — 30 bars and turgor pressure of 5 bars is submerged in a solution 'B' with an osmotic potential of • — 10 bars and O turgor pressure?

(a) Equal movement in both directions **(b) B to A**

(c) No movement (d) A to B

1. A cell is placed in 0.5 M solution of sugar and no change in volume of cell is there, what is the conc. of cell sap?

(a) 4m (b) 5m

**(c) 0.5 M** (d) 50 M

1. Diffusion pressure of pure solvent is:

**(a) Always more than its solution**

(b) Sometimes more than its solution

(c) Less than its solution

(d) Equal to its solution

1. Suction pressure of cell is:

(a) Equal to wall pressure (b) Equal to turgor pressure

**(c) Equal to D.P.D.** (d) Osmotic pressure

1. D.P.D:

(a) O.P: × T.P. (b) O.P. + T.P.

**(c) O.P. – W.P.** (d) T.P. – W.P.

1. What will be zero in a fully turgid cell?

(a) T.P. (b) W.P.

**(c) S.P.** **(d) C.P.**

1. a flaccid cell, what

(a) S.P. **(b)O.P.**

(c) D.P. (d) W.P.

1. In a flaccid cell:

(a) S.P. = O. **(b) S.P. = O.P**.

(c) S.P.> O.P. (d) S.P. < O.P.

1. Water potential can be calculated as:

(a) π + W.P. (b) ψ + W.P.

**(c) Osmotic potential + T.P.**  (d) π + T.P.

1. Seeds when placed in water swell because of:

(a) Osmosis (b) Root pressure

**(c) Imbibition** (d) Diffusion

1. 'Water potential of pure water and its solution are:

(a) 0 and I (b) 0 and 0

(c) 0 and more than 0 **(d) 0and less than 0**

1. Cell A with O.P. = 6 and W.P. = 5 is surrounded by the cells with OP. = 3 and T.P. = 2, what will be direction of water movement?

(a) From A to other cells (b) From other cells to A

**(c) No Movement**  (d) Water will move up