**MASTERS PRE-UNIVERSITY COLLEGE, HASSAN 573201.**

**Subject: BIOLOGY**

**Transport in Plants & Photosynthesis in higher plants**

1. The water potential of pure water is
   1. less than zero
   2. more than zero but less than one
   3. more than one
   4. zero.
2. Which of the following facilitates opening of stomatal aperture?
   1. Decrease in turgidity of guard cells
   2. Radial orientation of cellulose microfibrils in the cell wall of guard cells
   3. Longitudinal orientation of cellulose microfibrils in the cell wall of guard cells
   4. Contraction of outer wall of guard cells
3. A few drops of sap were collected by cutting across a plant stem by a suitable method. The sap was tested chemically. Which one of the following test results indicates that it is phloem sap?
   1. Acidic
   2. Alkaline
   3. Low refractive index
   4. Absence of sugar
4. Which of the following criteria does not pertain to facilitated transport?
   1. Transport saturation
   2. Uphill transport
   3. Requirement of special membrane proteins
   4. High selectivity
5. Two cells A and B are contiguous. 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
   1. no movement of water
   2. equilibrium between the two
   3. movement of water from cell A to B
   4. movement of water from cell B to A.
6. Main function of lenticel is
   1. transpiration (b) guttation (c) gaseous exchange (d) bleeding.
7. Loading of phloem is related to
   1. increase of sugar in phloem
   2. elongation of phloem cell
   3. separation of phloem parenchyma
   4. strengthening of phloem fiber.

1. The movement of ions against the concentration gradient will be
   1. active transport (b) osmosis

(c) diffusion (d) all of the above

1. Bidirectional translocation of solutes takes place in
   1. parenchyma (b) cambium

(c) xylem (d) phloem

1. The movement of water, from one cell of cortex to adjacent one in roots, is due to
   1. accumulation of inorganic salts in the cells
   2. accumulation of organic compounds in the cells
   3. water potential gradient

chemical potential gradient.

1. Water movement between cells is due to
   1. T.P. b) W.P.
2. D.P.D. d) incipient plasmolysis
3. 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 is
   1. diffusion (b) imbibition

(c) osmosis (d) DPD.

1. Minerals absorbed by root move to the leaf through
   1. xylem (b) phloem

(c) sieve tubes (d) none of the above

1. Phenyl mercuric acetate (PMA) results in
   1. reduced photosynthesis
   2. reduced transpiration
   3. reduced respiration
   4. killing of plants.
2. Water potential is equal to

(a) s + O.P. (b) s = T.P.

(c) p + w (d) s + p.

**Photosynthesis in higher plants**

1. With reference to factors affecting the rate of photosynthesis, which of the following statements is not correct?
   1. Increasing atmospheric CO2 concentration up to 0.05% can enhance CO2 fixation rate.
   2. C3 plants respond to higher temperature with enhanced photosynthesis while C4 plants have much lower temperature optimum.
   3. Tomato is a greenhouse crop which can be grown in CO2­enriched atmosphere for higher yield.
   4. Light saturation for CO2 fixation occurs at 10% of full sunlight.
2. Phosphoenol pyruvate (PEP) is the primary CO2 acceptor in

(a) C4 plants (b) C2 plants

(c) C3 and C4 plants (d) C3 plants

1. The process which makes major difference between C3 and C4 plants is

(a) glycolysis (b) Calvin cycle

(c) photorespiration (d) respiration

1. In a chloroplast the highest number of protons are found in
2. intermembrane space
3. antennae complex
4. stroma
5. lumen of thylakoids.
6. Emerson’s enhancement effect and Red drop have been instrumental in the discovery of
   1. photophosphorylation and cyclic electron transport
   2. oxidative phosphorylation
   3. photophosphorylation and non­cyclic electron transport
   4. two photosystems operating simultaneously.
7. Water soluble pigments found in plant cell vacuoles are
   1. carotenoids (b) anthocyanins

(c) xanthophylls (d) chlorophylls

1. In photosynthesis, the light­independent reactions take place at
   1. photosystem II (b) stromal matrix

(c) thylakoid lumen (d) photosystem I

1. A process that makes important difference between C3 and C4 plants is
   1. transpiration (b) glycolysis

(c) photosynthesis (d) photorespiration.

1. CAM helps the plants in
   1. conserving water (b) secondary growth

(c) disease resistance (d) reproduction

1. In kranz anatomy, the bundle sheath cells have
   1. thin walls, many intercellular spaces and no chloroplasts
   2. thick walls, no intercellular spaces and large number of chloroplasts
   3. thin walls, no intercellular spaces and several chloroplasts
   4. thick walls, many intercellular spaces and few chloroplasts.
2. Which one of the following is essential for photolysis of water?
   1. Manganese (b) Zinc

(c) Copper (d) Boron

1. Read the following four statements, (i), (ii),

(iii) and (iv) and select the right option having both correct statements.

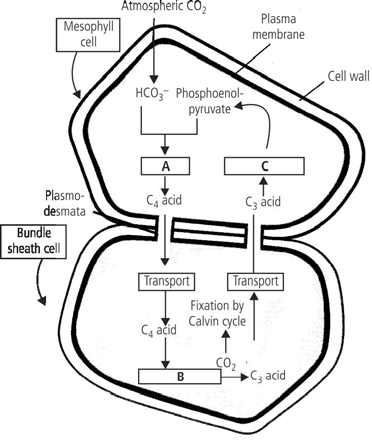
### Statements :

1. Z scheme of light reaction takes place in presence of PSI only.
2. Only PSI is functional in cyclic photophosphorylation.
3. Cyclic photophosphorylation results into synthesis of ATP and NADPH2.
4. Stroma lamellae lack PSII as well as NADP.

(a) (ii) and (iv) (b) (i) and (ii)

(c) (ii) and (iii) (d) (iii) and (iv)

1. Study the pathway given below:

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In which of the following options correct words for all the three blanks A, B and C are indicated?

### A B C

1. Decarboxylation Reduction Regeneration
2. Fixation Transamination Regeneration
3. Fixation Decarboxylation Regeneration
4. Carboxylation Decarboxylation Reduction
5. Cyclic photophosphorylation results in the formation of
   1. ATP and NADPH
   2. ATP, NADPH and O2
   3. ATP
   4. NADPH.
6. In C 3 plants, the first stable product of photosynthesis during the dark reaction is
   1. malic acid
   2. oxaloacetic acid
   3. 3­phosphoglyceric acid
   4. phosphoglyceraldehyde