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Q-1 - 30697018

The Pressure exerted by the swelling protoplast on the walls of the cell is

- (A) Wall pressure
- (B) Osmotic pressure
- (C) Suction pressure
- (D) Turgor pressure .

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**CORRECT ANSWER: D**

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Q-2 - 30697026

O.P. of a call can be measured by

- (A) Manometer
- (B) Photometer
- (C) Calorimeter
- (D) Plasmolysis

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**CORRECT ANSWER: D**

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Q-3 - 30697027

O.P. of a solution can be measured by

- (A) Photometer

(B) Osmometer

(C) Calorimeter

(D) Plasmolysis

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**CORRECT ANSWER: B**

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Q-4 - 36805929

Which of the following elements is responsible for maintaining turgor in cells

(A) Potassium

(B) Sodium

(C) Magnesium

(D) Calcium

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CORRECT ANSWER: A

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SOLUTION:

Among the given elements , potassium ( $K^+$ ) is responsible for maintaining turgor pressure in cell because it regulates the proton pumps involved in opening and closing of stomata . Magnesium ( $Mg^{2+}$ ) is a constituent of chlorophyll pigment which helps in photosynthesis in green plants .

Calcium ( $Ca^{2+}$ ) provides selective permeability to the cell membrane . All of these , i.e.  $K^+$  ,  $Ca^{2+}$  and  $Mg^{2+}$  are essential elements .

Sodium ( $Na^+$ ) is involved in membrane permeability .

It is a non-essential element.

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Amount of water transpired can be known with the help of

- (A) Porometer
- (B) Psychrometer
- (C) Conductivity meter
- (D) Dendrograph

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Q-6 - 55653270

At the time of seed germination , when water is absorbed by the seeds due to imbibition , the seed coat breaks as it swells to a lesser degree than the kernel because

- (A) the kernel is made up of proteins, lipids and starch while the seed coat is formed of cellulose .

(B) the kernel is made up of cellulose while the seed coat is made up of proteins, lipids and starch .

(C) both kernel and seed coat are made up of same constituents , it depends on the nature of medium .

(D) none of the above .

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**CORRECT ANSWER: A**

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**SOLUTION:**

Seed coats are made up of cellulose. And the cellulose has comparatively little imbibitional capacity , so little water is absorbed and seed coats break . The most important of the plant imbibant are protein, pectin compounds , starch and cellulose, which can imbibe large amount of water . Some of the proteins can imbibe upto 15 times their own volume .

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Q-7 - 30697034

When chemical fertilisers are given to plants, the soil is to be thoroughly watered otherwise the plants get killed because of

- (A) Toxic effects of chemical (fertilisers ) compounds
- (B) Plasmolysis due to high concentration of fertilisers
- (C) Failure of physiological process like photosynthesis and respiration
- (D) None of the above

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**CORRECT ANSWER: B**

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Q-8 - 17239248

In the resting state of the neutral membrane, diffusion due to

concentration gradients, if allowed would drive.

- (A)  $Na^+$  into the cell
  - (B)  $Na^+$  out of the cell
  - (C)  $K^+$  into the cell
  - (D)  $K^+$  and  $Na^+$  out of the cell
- 

CORRECT ANSWER: A

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Q-9 - 36806001

Stomatal movement is not affected by

- (A)  $O_2$  concentration
- (B) Light
- (C) Temperature



(D)  $CO_2$  concentration

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SOLUTION:

Stomatal movement is not affected by  $O_2$  concentration .

Stomata are tiny pores complexes found in the epidermis of leaves and other soft aerial parts . They are meant for the gaseous exchange but are also the main source of transpiration. Stomatal movements are affected by many factors like light , temperature and  $CO_2$  concentration . In the majority of plants , the stomata are open in light and close in darkness .

Normally high temperature above  $30C$  reduces stomatal opening in many species . Low  $CO_2$  concentration usually induces opening of stomata while high  $CO_2$  concentration closes the same .

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The practice of breaking of rocks during rainy season by inserting wooden pegs in them is based on the phenomenon of

- (A) Turgor pressure
- (B) Osmotic pressure
- (C) Matric potential
- (D) Plasmolysis

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**CORRECT ANSWER: C**

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When the cell is turgid

(A)  $\Psi_P > \Psi_S$

(B)  $\Psi_P < \Psi_S$

(C)  $\Psi_P = \Psi_S$

(D)  $\Psi_P \neq \Psi_S$

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CORRECT ANSWER: C

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Q-12 - 17239201

Where does transpiration cohesion pull theory works

(A) Active absorption

(B) Inactive absorption

(C) Active and inactive absorption

(D) None of these

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CORRECT ANSWER: B

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Q-13 - 30697053

What will happen when pollen grain is placed in water ?

- (A) It will germinate and produce a pollen tube
- (B) The pollen grain does not germinate
- (C) The pollen grain swells up but bursts at places without forming a pollen tube
- (D) The pollen grain forms a number of pollen tubes

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CORRECT ANSWER: C

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Q-14 - 30697074

Plants with scotoactive stomate perform

- (A) C<sub>4</sub> photosynthesis
  - (B) CAM photosynthesis
  - (C) C<sub>3</sub> photosynthesis
  - (D) Anoxygenic photosynthesis.
- 

**CORRECT ANSWER: B**

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Q-15 - 17239132

Who had said that "transpiration is a necessary evil"

- (A) Curtis
- (B) Steward
- (C) Anderson

(D) J. C. Bose

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**CORRECT ANSWER: A**

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Q-16 - 55653402

The high amount of malate in guard cells of open stomata accumulates by the hydrolysis of

(A) glucose

(B) lignin

(C) cellulose

(D) starch

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**CORRECT ANSWER: D**

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Imbibition occurs when

- (A) Grapes are dipped in saturated solution
  - (B) Wood is placed in ether
  - (C) Rubber is dipped in ether
  - (D) Rubber is dipped in water
- 

**CORRECT ANSWER: C**

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The term water potential was proposed by

- (A) Boseq

(B) Dixon

(C) Godlewski

(D) Slatyer and Taylor

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**CORRECT ANSWER: D**

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Q-19 - 17239188

In which of the following plants would metabolism be hindered if the leaves are coated with wax on their upper surface

(A) Hydrilla

(B) Lotus

(C) Pistia

(D) Vallisneria

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**CORRECT ANSWER: B**

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Q-20 - 55653419

A passive hydathode comprises a group of loosely arranged colourless and parenchymatous cells known as

(A) spongy parenchyma

(B) aerenchyma

(C) apithem

(D) prosenchyma

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**CORRECT ANSWER: C**

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Q-21 - 17239141

The shot pressure is measured by

- (A) G. M. Counter
  - (B) Luxmeter
  - (C) Pressure bomb technique
  - (D) Bomb calorimeter
- 

CORRECT ANSWER: C

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Q-22 - 30697048

Osmotic potential of pure water is

- (A) One
- (B) Zero
- (C) Less than Zero

(D) Between zero and one .

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**CORRECT ANSWER: B**

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Q-23 - 17239139

The best vital force theory was proposed by

(A) Godlewsky

(B) Strasberger

(C) Dixon

(D) Esau

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**CORRECT ANSWER: A**

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Q-24 - 55653451

Munch's mass flow hypothesis explains

- (A) water flow in xylem
  - (B) horizontal flow of water from cortex to xylem
  - (C) translocation of solutes through phloem
  - (D) absorption of water by roots .
- 

CORRECT ANSWER: C

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Q-25 - 30697064

Sunken stomate

- (A) Increase transpiration
- (B) Decrease transpiration
- (C) Hinder transpiration

(D) Stop transpiration

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**CORRECT ANSWER: B**

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Q-26 - 55653412

The hormone which promotes the outflow of potassium from guard cells is

(A) IAA

(B) gibberellins

(C) ethylene

(D) abscisic acid

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**CORRECT ANSWER: D**

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Q-27 - 55653414

A leaf with hair on its surface

- (A) increases transpiration
  - (B) reduces transpiration
  - (C) reduces guttation
  - (D) reduces exchange of gases .
- 

**CORRECT ANSWER: B**

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Q-28 - 17239240

**OSMOTIC PRESSURE**

- (A) Xerophytes

(B) Lithophytes

(C) halophytes

(D) Mesophytes

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**CORRECT ANSWER: C**

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Q-29 - 30697068

In xerophytic leaf the stomate are situated

(A) On both surfaces

(B) On upper surface

(C) On lower surface

(D) Absent from both surfaces

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**CORRECT ANSWER: C**

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Q-30 - 55653474

LAR or leaf area ratio is the total area of leaves per total plant weight . It tends to be largest in

- (A) hydrophytes
- (B) Mesophytes
- (C) Xerophytes
- (D) halophytes

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**CORRECT ANSWER: A**

Q-31 - 55653349

The plants that send their roots upto fringe of the water table due to



the deficiency of air are called

- (A) hyrophytes
  - (B) phreatophytes
  - (C) mesophytes
  - (D) halophytes
- 

**CORRECT ANSWER: B**

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Q-32 - 30697708

Who gave the imbibition theory of ascent of sap

- (A) Unger
- (B) Dixon and Joly
- (C) Bose

(D) Godlewaki

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Q-33 - 17239148

The absorption of food is phloem is

(A) Basipetal

(B) Acropetal

(C) Both a and b

(D) none of these

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**CORRECT ANSWER: A**

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Q-34 - 17239129

"There is no translocation at low temperature" has been invented by

(A) Swanson and Whitne

(B) Fenson

(C) Spanner

(D) Munch

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CORRECT ANSWER: A

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Q-35 - 30697617

The number of stomatal pores per  $cm^2$  of leaf surface are in the range of

(A) 1000-60,000

(B) 10-1000

(C) 50,000-100,000

(D) 50-100.

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**CORRECT ANSWER: A**

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Q-36 - 30697070

Guttation is form

- (A) Uninjured edges of leaves near vein endings
  - (B) Epidermal layers of leaf surfaces
  - (C) Injured edges of leaves
  - (D) None of the above
- 

**CORRECT ANSWER: A**

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Q-37 - 55653484

Sinks are related to

(A) transport of materials

(B) stomata

(C) enzymes

(D) phytochrome

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**CORRECT ANSWER: A**

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Q-38 - 17239169

Vein loading is the active transport of sugars from

(A) Mesophyll cells to vessels

(B) Vessels to mesophyll cells

(C) Mesophyll cells to sieve tubes

(D) Sieve tubes to mesophyll cells

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**CORRECT ANSWER: C**

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Q-39 - 17239167

Who proposed blood like translocation of solutes

(A) Spanner

(B) munch

(C) Williams

(D) Jones

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**CORRECT ANSWER: B**

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Q-40 - 17239156

During transport of sugar or amino acid through cell membrane

- (A)  $Na^+$  ions move against the direction of concentration gradient
  - (B)  $Na^+$  ions move in both directions irrespective of its concentration gradient
  - (C) No net  $Na^+$  ions movement
  - (D)  $Na^+$  ions move in the direction of its concentration gradient
- 

**CORRECT ANSWER: A**

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Q-41 - 30697058

Potometers are made on the principle that

(A) The amount of water transpired is approximately equal to amount of water absorbed

(B) The amount of water transpired is more than the amount of water absorbed

(C) The amount of water transpired is less than the amount of water absorbed

(D) Humidity causes reduction in transpiration.

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**CORRECT ANSWER: A**

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Q-42 - 55653378

In a branch cut from a rapidly transpiring plant, water snaps away from the cut end. It shows that

(A) it is under tension



(B) it is in excess in vessels

(C) it has been absorbed by capillary force

(D) it has been absorbed by imbibition force.

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**CORRECT ANSWER: A**

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Q-43 - 17239128

Who studied the effect of light on translocation

(A) De Vries

(B) Blackman

(C) Williams

(D) Hart

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**CORRECT ANSWER: D**

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Q-44 - 30697073

Loss of water by cells without external sign of leaf drooping is called

- (A) Temporary wilting
- (B) Nascent wilting
- (C) Incipient wilting
- (D) Permanent wilting.

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**CORRECT ANSWER: C**

Q-45 - 55653389

Which of the following amphistomatous leaves would dry up last ?

(A) Both surfaces ungreased

(B) Both surfaces greased

(C) Upper surface greased

(D) Lower surfaces greased

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**CORRECT ANSWER: B**

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