



### **BIOLOGY**

### **BOOKS - CHETANA PUBLICATION**

#### PLANT WATER RELATION

# Example

1. Which are the various parts of plant body?

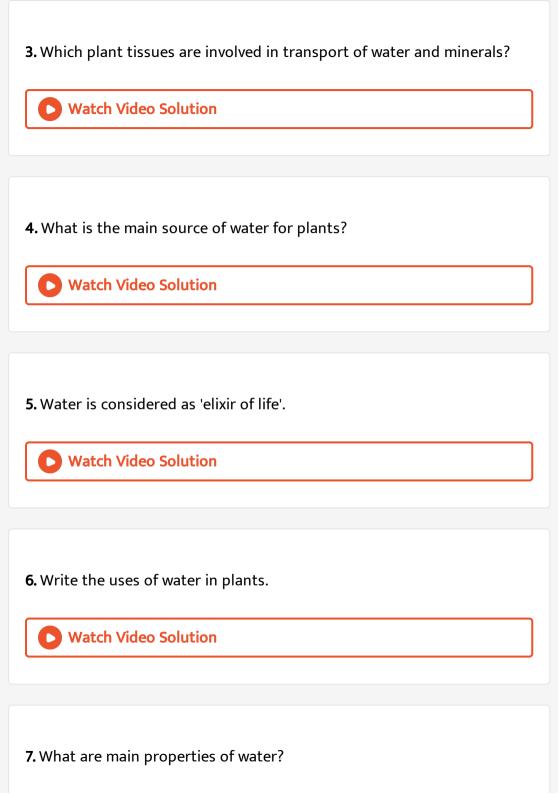


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2. What are the functions of various parts of plant body?

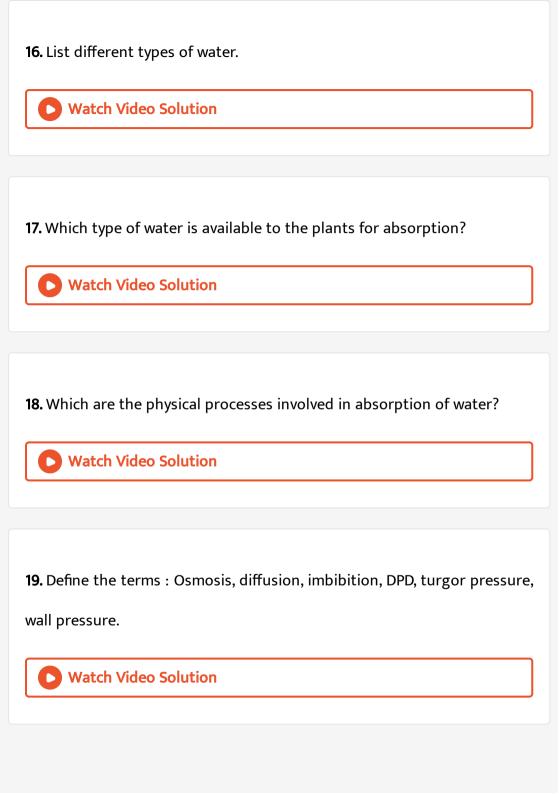


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8. What are the meanings of specifis heat, heat of vaporization and heat
of fusion?
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9. What are adhesive and cohesive forces?
Watch Video Solution
<b>10.</b> What is a hydrogen bond?
Watch Video Solution
11. What is velamen and where do you find them?
Watch Video Solution

12. Describe regions of Root.  Watch Video Solution
Watch video solution
13. Describe structure of root hair.
Watch Video Solution
14. What is rhizosphere?
Watch Video Solution
15. What are the different types of water present in soil?
Watch Video Solution



20. Define Osmotic pressure
Watch Video Solution
21. Write a note on Faciliated diffusion?
Watch Video Solution
22. Compare Exo-osmosis and Endo-osmosis
Watch Video Solution
23. Explain the terms: Endo-osmosis
Watch Video Solution
<b>24.</b> Explain the terms: Exo-osmosis

Watch Video Solution
<b>25.</b> What are hypotonic, hypertonic and isotonic solutions?
Watch Video Solution
<b>26.</b> Enlist the importance of Turgor pressure
Watch Video Solution
27. Why do the wooden doors become very hard to close and open in rainy season.
Watch Video Solution
28. When you burn an incense stick in one corner of a room, its fragrance
spreads all over the room in a short time. How does it happen?

Watch Video Solution
<b>29.</b> Distinguish between: Diffusion and osmosis
Watch Video Solution
<b>30.</b> What is the importance of Osmosis?
Watch Video Solution
<b>31.</b> Sketch and label a diagram to explain the diffusion of water into plant coll across plasma membrane.
Watch Video Solution
32. What is solute potential?
Watch Video Solution

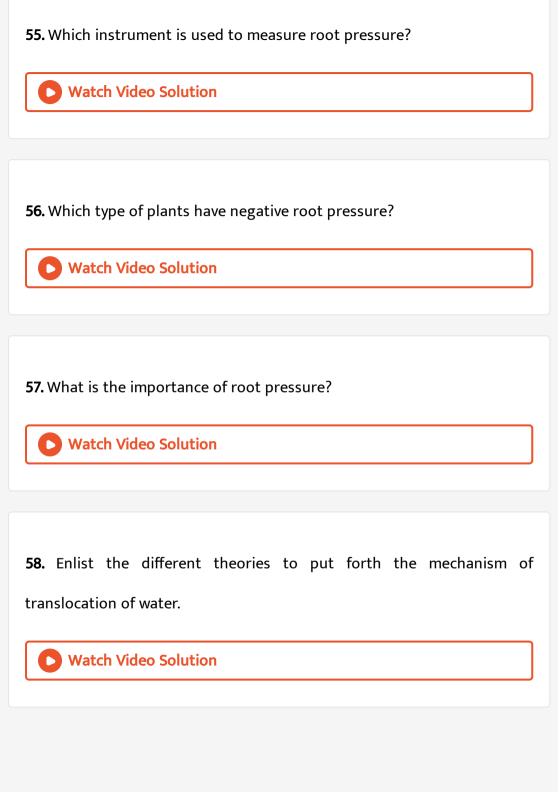
<b>33.</b> Briefly described water potential?
Watch Video Solution
<b>34.</b> What are the factors affecting water absorptioin?
Watch Video Solution
<b>35.</b> What happens when a pressure greater than the atmospheric
pressure is applied to pure water or a solution?
Watch Video Solution
<b>36.</b> What is the unit of water potential?
Watch Video Solution

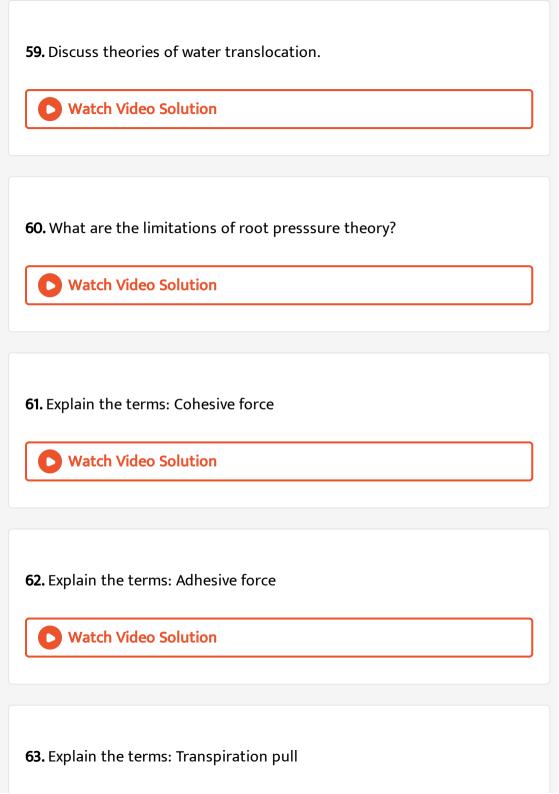
<b>37.</b> Name the condition in which protoplast of the plant cell shrinks.
Watch Video Solution
<b>38.</b> What is deplasmolysis?
Watch Video Solution
<b>39.</b> Which type of solution will bring about deplasmolysis?
Watch Video Solution
<b>40.</b> Define Plasmolysis.
Watch Video Solution
<b>41.</b> Define Root pressure.

Watch Video Solution
<b>42.</b> Write on the journey of water from soil to xylem in roots.
Watch Video Solution
<b>43.</b> Explain movement of water in the root.
D. Explain movement of water in the root.
Watch Video Solution
<b>44.</b> Differntiate between Apoplast and Symplast Pathway.
Watch Video Solution
• Water video Sciulon
<b>45.</b> Mention any two characteristics of active absorption.
-13. Mention any two characteristics of active absorption.
Watch Video Solution

<b>46.</b> Define Active and Passive absorption.
Watch Video Solution
<b>47.</b> Differentiate between Active and Passive Absorption.
Watch Video Solution
<b>48.</b> Describe mechanism for absorption of water.
Watch Video Solution
<b>49.</b> List and explain two mechanism of water absorption.
Watch Video Solution
<b>50.</b> Write a note on Non-osmotic absorption.

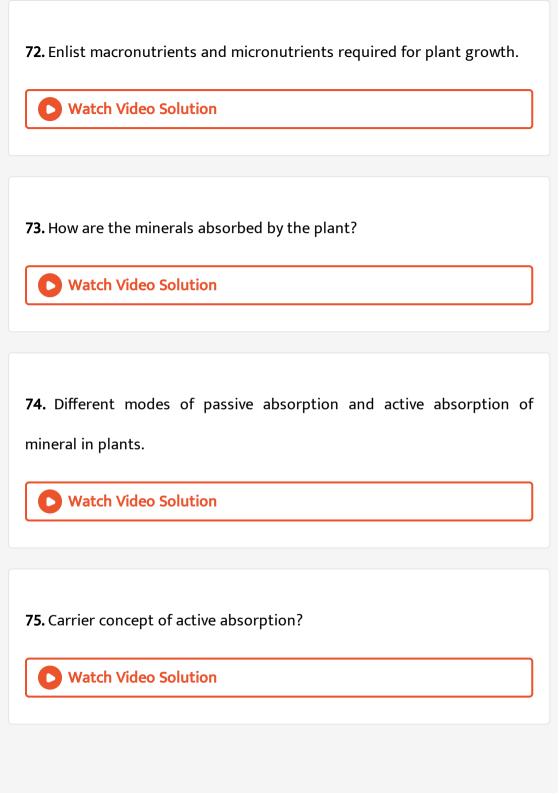
Watch Video Solution
<b>51.</b> List and explain two mechanism of water absorption.
Watch Video Solution
Water video solution
<b>52.</b> Define: Sap
Watch Video Solution
Water video solution
<b>53.</b> Define : Ascent of Sap.
Watch Video Solution
<b>54.</b> What is exudation (bleeding).
ST. What is exaducion (biccumg).
Watch Video Solution



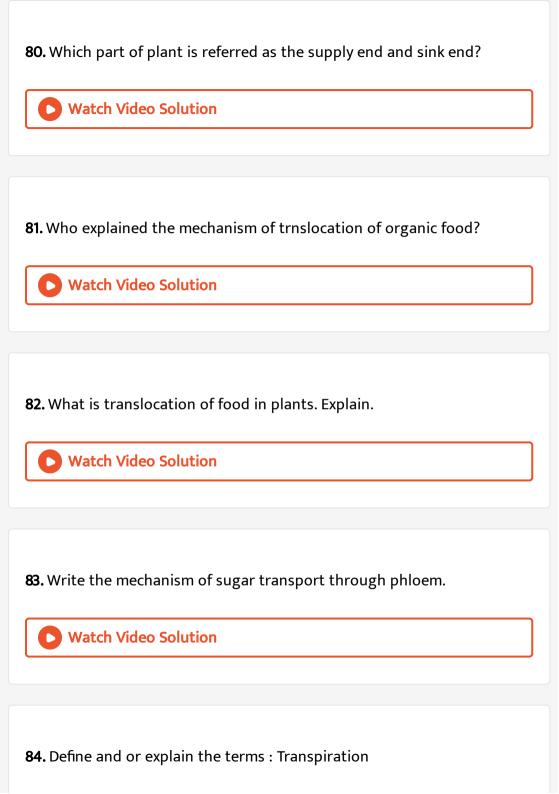


Watch Video Solution
<b>64.</b> Explain the terms: Surface tension
Watch Video Solution
<b>65.</b> Define Root pressure.
Watch Video Solution
<b>66.</b> Sketch and label the diagram to show the experiment on root pressure.
Watch Video Solution
<b>67.</b> Explain capillarity theory in connection with translocation of water.
Watch Video Solution

<b>68.</b> What are the limitations of capillarity theory?
Watch Video Solution
<b>69.</b> Explain cohesion theory for translocation of water.
Watch Video Solution
<b>70.</b> Explain the terms: Transpiration pull
Watch Video Solution
<b>71.</b> What are the objections of transpiration pull?
Watch Video Solution

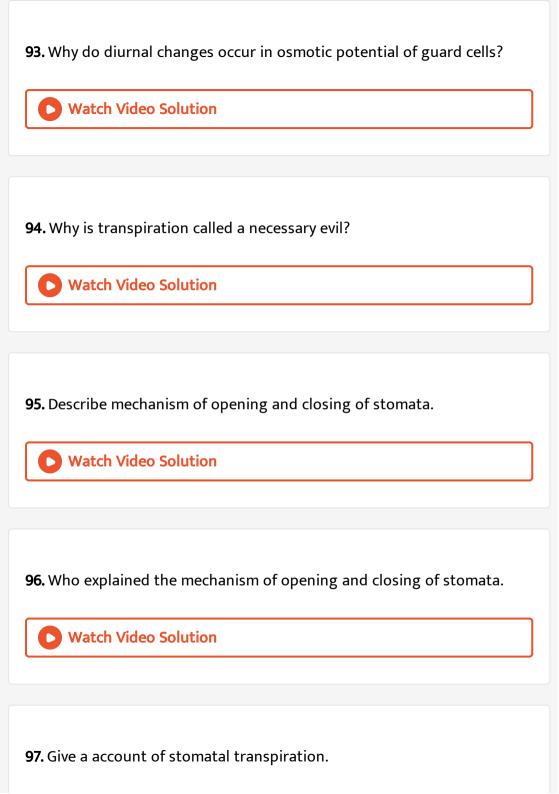


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77. What essential roles do the root endodermis play during water-mineral absorption in plants.
Watch Video Solution
<b>78.</b> What is translocation of organic solutes?
Watch Video Solution
<b>79.</b> NAme the special conducting tissue to translocate food in plants?
Watch Video Solution



Watch Video Solution
85. Define and or explain the terms : Guttation
Watch Video Solution
<b>86.</b> What is translocation?
Watch Video Solution
87. Explain the role of transpiration.
Watch Video Solution
88. What is terminator? What is its significance in transcription?
Watch Video Solution

89. Describe in brief the three types of transpiration.
Watch Video Solution
<b>90.</b> What are the harmful effects of transpiration.
Watch Video Solution
91. Mention the shape of guard cells in Cyprus.
Watch Video Solution
92. With the help of a neat and labeled diagram describe the guard cells
in monocot and dicot plants.
in monocot and dicot plants.  Watch Video Solution



Watch Video Solution
98. Describe mechanism of opening and closing of stomata.
Watch Video Solution
99. Who referred transpiration as unavoidable evil and necessary evil?
Watch Video Solution
<b>100.</b> Distinguish between: Evaporation and Transpiration.
Watch Video Solution
<b>101.</b> Distinguish between : Guttation and Transpiration.
Watch Video Solution

**102.** What is hydroponics? How is it useful in identifying the role of nutrients.



**Watch Video Solution** 

# **Exercise**

- 1. In soil water available for absorption by root is ..........
  - A. gravitational water
  - B. capillary water
  - C. hydroscopic water
  - D. combined water

#### Answer:



**Watch Video Solution** 

2. The most widely accepted theory for ascent of sap is
A. capillarity theory
B. root pressure theory
C. diffusion
D. transpiration pull throry
Answer:
Watch Video Solution
3. Water movement between the cells is due to
A. TP
B. WP
C. DPD
D. incipient plasmolysis

# Answer: Watch Video Solution 4. In guard cells, when sugar is converted into starch the stomatal pore..... A. closes almost completely B. opens partially C. opens fully D. remains unchanged

## Answer:



**5.** Surface tension is due to .....

A. diffusion B. Osmosis C. gravitational force D. Cohesion **Answer: Watch Video Solution** 6. Which of the following types of solution has lower level of solutes than the solution? A. Isotonic B. Hypotonic C. Hypertonic D. Anisotonic **Answer:** 

0	Watch Video Solution	
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7. During rainy season wooden doors warp and become difficult to open
or to close because of

A. Plasmolysis

B. Imbibition

C. Osmosis

D. Diffusion

#### **Answer:**



Watch Video Solution

**8.** Water absorption takes palce through.....

A. lateral roots

B. root cap

C. root hair
D. primary root
Answer:
Watch Video Solution
9. Due to low atmospheric prssure the rate of transpiration will
A. increase
B. decrease rapidly
C. decrease slowly
D. remain unaffected
Answer:
Watch Video Solution

10. Osmosis is a property of
A. solute
B. solvent
C. solution
D. membrane
Answer:
Watch Video Solution
11. Root hair will absorb water when external solution is
A. Viscous
B. Isotonic
C. Hypertonic
D. Hypotopnic

Watch Video Solution
12. Absorption of water involving the activity of root is called
A. Active absorption
B. Imbibition
C Passive absorption
C. Passive absorption
D. Diffusion
Answer:
Watch Video Solution
13. Uptake of water at the expenses of metabolic energy is known as
A. Endosmosis

**Answer:** 

B. Diffusion
C. Active absorption
D. Passive absorption
Answer:
Watch Video Solution
14. Maximum transpiration occus through
A. Stomate
B. Cuticle
C. Lenticels
D. Barle
Answer:
Watch Video Solution

15. Water in plants rises through
A. xylem
B. phloem
C. pith
D. cortex
Answer:
Watch Video Solution
16. Guard cells are associated with
A. Lenticels
A. Lenticels  B. Hydathodes
B. Hydathodes

# Answer: **Watch Video Solution** 17. Three compartments of a cell are..... A. cell wall, vacuole and protoplasm B. cell wall, plasma membrane and cytoplasm C. cell wall, chloroplast and mitochondria D. cell wall, tonoplast and chloroplast

18. An example of a not seclectively permeable membrane is.........

Answer:

**Watch Video Solution** 

A. plasmalemma

C. mitochondrial membrane
D. chloroplast membrane
Answer:
Watch Video Solution
19. Purple cabbage leaves do not loose their colour in cold water but they
do so in boiling water because
A. The plasma membrane gets killed in boiling water
B. hot water can enter the cells readily
C. the pigment is not soluble in cold water
D. the cell wall is killed in boiling water
Answer:
Watch Video Solution

B. cell wall

20. Uniformly sweet taste of tea or coffee is due to
A. spreading
B. osmosis
C. permeability
D. Diffusion
Answer:  Watch Video Solution
21. In plants, the semipermeable membrane allows the diffusion of
A. solvent
B. solute
C. bothe a and b
D. none of these

# **Answer: Watch Video Solution** 22. Water potential in a cell of root hair absorbing the water is......... A. zero B. less than zero C. more than zero D. more than that of soild and water Answer: **Watch Video Solution** 23. To initiate plasmolysis in plant cells the salt solution uesed as........... A. hypertonic

C. isotonic
D. atonic
Answer:
Watch Video Solution
<b>24.</b> In pickles, infection is rare due to
A. Plasmolysis
B. decrease in osmotic potential by salt
C. increase in osmotic potential by salt
D. decrease in temperature by salt
Answer:
Watch Video Solution

B. Hypotonic

A. As a result of dehydration
B. Due to damag of walls of root hairs
C. Due to blockage of nitrogenous ions
D. Due to upsets iin soil evironment by poisonous soil bacteria
Answer:
Watch Video Solution
26. A plasolysed cell can be deplasmolysed by placing it in
A. saturated solution
B. pure water or hypotoonic solution
C. isotonic solution
D. hypertonic solution

**25.** Why plants die when overfertilized ? .....

# **Watch Video Solution** 27. Plant cell do not burst in distilled water because the cell wall is...... A. elastic, rigid and get streched B. living C. the outermost layer in planet cell D. permeable Answer: **Watch Video Solution** 28. If a plant cell is immersed in water, the water continues to enter the cell until the ......

Answer:

A. concentration of the salt is the cell as outside
B. cell bursts
C. diffusion pressure is the same inside cell as outside
D. concentration water is the same in the cell as outside
Answer:
Watch Video Solution
29. Plant cell submerged in distilled water become
A. flaccid
B. turgid
C. plasmolysed
D. impermeable
Answer:
Watch Video Solution

<b>30.</b> Turgidity in plant cells maintain by
A. Osmotic pressure
B. Wall pressure
C. Turgor pressure
D. Diffusions pressure
Answer:  Watch Video Solution
31. The turgor pressure of turgid cell is equal and opposite to
A. root pressure
B. Wall pressure
C. diffusion pressure

Answer:
Watch Video Solution
<b>2.</b> Wooden doors swell up and get stuck up during rainy season due to
A. imbibition
B. endosmosis
C. capillarity
D. deplasmolysis
Answer:
Watch Video Solution

D. all the above

**33.** Many transplanted seedling may not survive because..........

A. most of the root hair are lost during transplantation

B. the leaves get damaged during the transfer

C. they do not get the required mineral

D. they do not like the new soil

#### **Answer:**



**34.** Write on the journey of water from soil to xylem in roots.

A.  $m\eta xy \leq m o pro o xy \leq m o c \,\, ext{or} \,\, tex o \sqrt[h]{a}ir$ 

В.

 $c \,\, ext{or} \,\, tex 
ightarrow \sqrt[h]{a} ir 
ightarrow endodermispericy \leq \,\, 
ightarrow protexy \leq m 
ightarrow m\eta x$ 

C.  $soil \to \sqrt[h]{a}ir \to c \ \text{or} \ tex \to endodermispericy} c \le \to pro \to xy \le$  D.  $pericyc \le \to soil \to \sqrt[h]{a}ir \to c \ \text{or} \ tex \to endodoermis \to pro \to xy$  Answer:



**35.** Casparian strips are located in ......

A. root cap

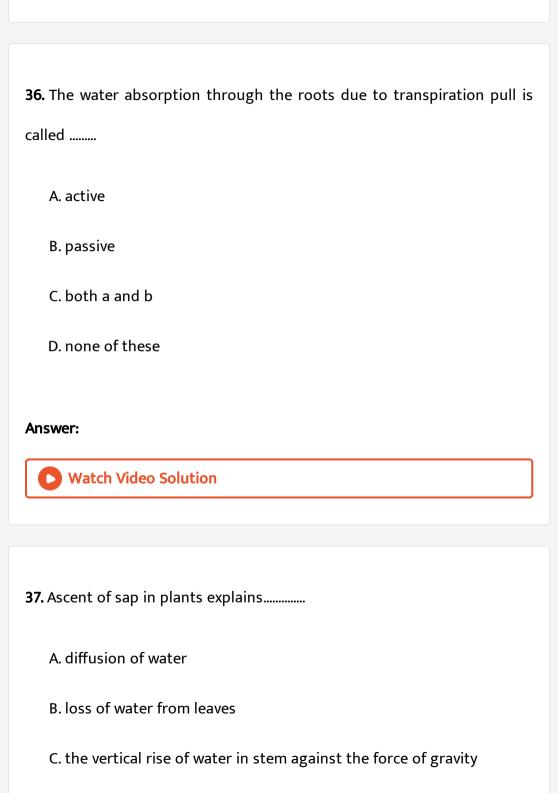
B. root hair

C. endodermis

D. none of these

Answer:

Watch Video Solution



D. building up of organic food
Answer:  Watch Video Solution
38. Water in plants is transported by
A. Cambium
B. pholem
C. xylem or xylem vessel elements
D. epidermis
Answer:
Watch Video Solution
<b>39.</b> Root pressure is maximum when

A. transpiration is high and absorption is very low B. transpiration is very low and absorption is high C. transpiration is very high and abosrption is also high D. transpiration and absorption both are low **Answer: Watch Video Solution** 40. Root pressure is absent in ...... A. rapidly transpiring plants B. conifers C. plant growing in cold soils D. all of these **Answer: Watch Video Solution** 

<b>41.</b> The absorbed water can rise to highest point by
A. root pressure
B. imbibition force
C. force of capillary
D. transpiratioin pull
Answer:  Watch Video Solution
<b>42.</b> The mechanism by which water moves from roots to leaves is called
A. De Vries Cytoplasmic Streaming Theory
B. Munch's Presssure Flow Theory
C. Translocation of Solutes

D. Dixon's Theory of Cohesion
Answer:
Watch Video Solution
<b>43.</b> The force responsible for raising water in 100 ft tall plant is
A. transpiration pull
B. root pressure
C. air pressure
D. capillary action
Answer:
Watch Video Solution
<b>44.</b> Cohesive force of water is between

A. water and water
B. cell wall and cell wall
C. water and cell wall
D. attraction
Answer:
Watch Video Solution
<b>45.</b> Transpiration- cohesion - tension theory operates in
A. Active absorption
B. passive absorption
C. both active and passive
D. none of these
Answer:
Watch Video Solution

<b>46.</b> Rate of water absorption can be increase through
A. decereased transpiration
B. decreased ion absorption
C. increased photosynthesis
D. increased transpitation
Answer:
Watch Video Solution
<b>47.</b> Rate of water absortion is slow near freezing point because
A. water absorption is a metabolic process
A. water absorption is a metabolic process  B. cell growth stops

D. cell membrane become more viscous
Answer:
Watch Video Solution
48. Which of the following is called necessary evil?
A. Osmosis
B. Absorption
C. Transpiration
D. Photosynthesis
Answer:
Watch Video Solution
<b>49.</b> "Transpiration is a necessary evil" was given by

A. Steward
B. Bose
C. Anderson
D. curtis
Answer:
Watch Video Solution
50. Transpiration occurs in
A. leaves
B. stems
C. all aerial parts
D. roots
Answer:
Watch Video Solution

**51.** In plants, the process of transpiration helps in ........

A. absorption of O\_2`

B. upward conduction of water and minerals

C. absorption  ${\it CO}_2$ 

D. opening of stomata

### Answer: upwads translocation of water



**Watch Video Solution** 

**52.** In lenticular transpiration, loss of  ${\cal H}_2{\cal O}$  in the form of water vapour is through .......

A. Openings present on stem and fruits

B. stomatal opening present on leaves and on green stem

C. the cuticle present on the surface of stem and leaves

Answer:
Watch Video Solution
<b>53.</b> Which of the following is not a the type of transpiration?
A. Stomatal transpiration
B. Cuticular transpiration
C. Lenticular transpiration
D. Endodermal transpiration
Answer:
Watch Video Solution
<b>54.</b> The rate of transpiration is practically nil during

D. none of these

A. 50% relative humidity B. 60% relative humidity C. 100% relative humidity D. 0% relative humidity **Answer: Watch Video Solution** 55. Minimum transpiration is found in ........ A. hydrophytes B. mesophytes C. xerophytes D. lithophytes **Answer: Watch Video Solution** 

A. respiration
B. absorption
C. photosynthesis
D. transpiration
Answer:
Watch Video Solution
57. Stomata in angiosperms open and close due to
A. their genetic constitution
B. effect of hormones
C. changes of turgor pressure in guard cells

**56.** Wilting appears due to excessive......

D. pressure of gases inside the leaves

#### **Answer:**



**Watch Video Solution** 

**58.** Which of the following is the most likely cause for wider opening of stomata?

- A. The atmosphere outside the stomata is becoming less humid
- B. Secretions of salt molecules by the adjacent guard cells is taking place
- C. Water molecules enter guard cells
- D. The night temperature is going to fall

#### **Answer:**



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59. Transpiration pull will be maximum under which of the following conditions?

- A. Open stomata, high humid atmosphere and well irrigated soil
- B. Open stomata, dry atmosphere and moist soil
- C. Open stomata, high humid atmosphere and dry soil
- D. Closed stomata, low light intensity and humid atmosphere

#### Answer:

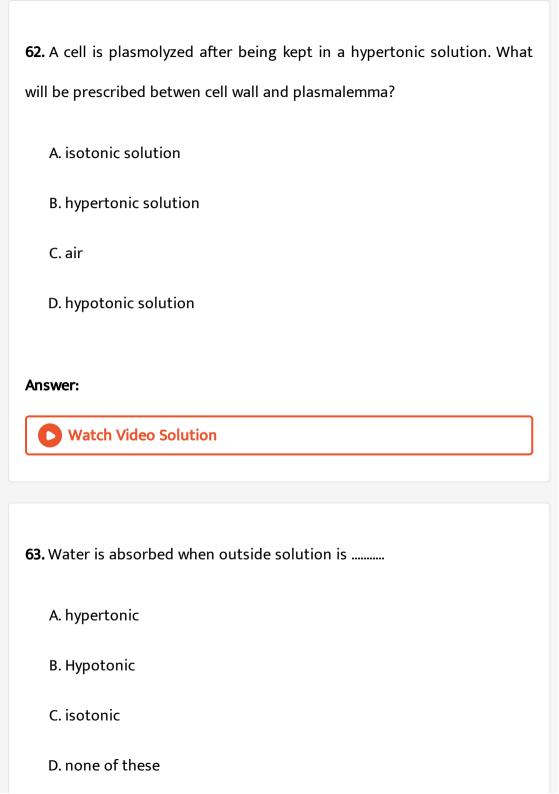


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60. In which of the following situation, the stomata transpiration exhibits a steep decline?

- A. High  $O_2$
- B. High  $CO_2$
- C. Dry air

D. Full water saturation of the plant
Answer:
Watch Video Solution
<b>61.</b> In hypertonic solution, the water potential of a cell
A. decreases
B. increases
C. first increases and then decreases
D. does not change
Answer:
Watch Video Solution



### Answer:



### 64. Osmosis involves ......

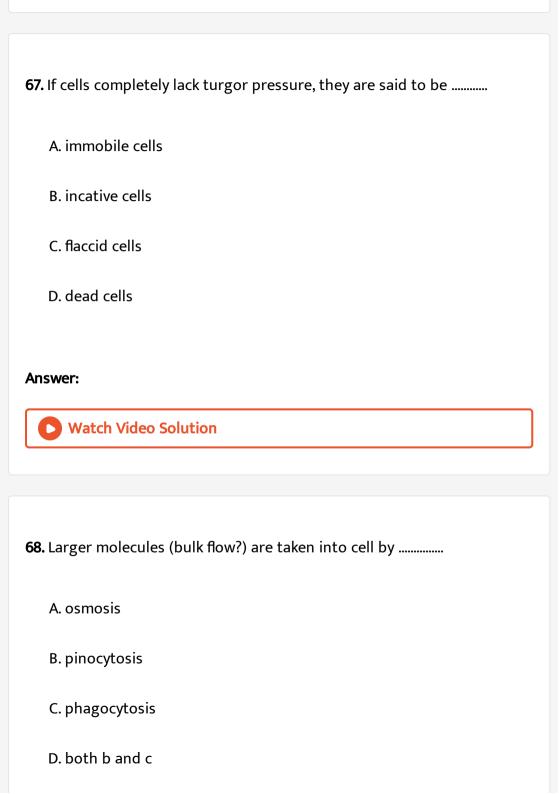
- A. diffusion of suspended particles higher to lower concentration
- B. diffusion of suspended particles for lower to higher concentration
- C. diffusion of water from more to less concentrated side
- D. diffusion of water from less to more concentrated side

#### **Answer:**



- 65. Which of the following is against concentration gradient?
  - A. Transpiration

B. Translocation
C. Diffusion
D. Osmosis
Answer:
Watch Video Solution
<b>66.</b> The pressure exerted by cell wall to balance the turgor pressure is
called
A. wall pressure
B. osmotic pressure
C. DPD
D. imbibition pressure
Answer:
Watch Video Solution



# Answer: **Watch Video Solution** 69. Root hair will absorb water when external solution is...... A. Viscous B. Isotonic C. Hypertonic D. Hypotonic Answer: **Watch Video Solution** 70. Absorption of water involving the activity of root is called...... A. Active absorption

C. Passive absorption
D. Diffusion
nswer:
Watch Video Solution
1. Uptake of water at the expenses of metabolic energy is known as
A. Endosmosis
B. Diffusion
C. Active absorption
D. Passive absorption
nswer:
Watch Video Solution

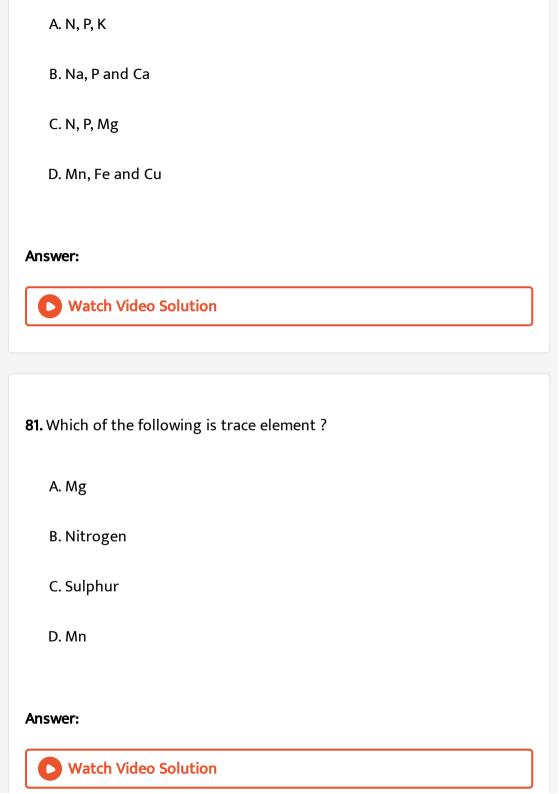
B. Imbibition

# **Answer:** Watch Video Solution 74. Water in plants rises through....... A. xylem B. phloem C. pith D. cortex **Answer:** Watch Video Solution 75. Guard cells are associated with..... A. Lenticels

B. Hydathodes
C. Stomata
D. Epiblema
Answer:
Watch Video Solution
<b>76.</b> Wooden doors swell up and get stuck up during rainy season due to
A. Endosmosis
B. Exosmosis
C. Imbibition
D. Capillarity
Answer:
Watch Video Solution

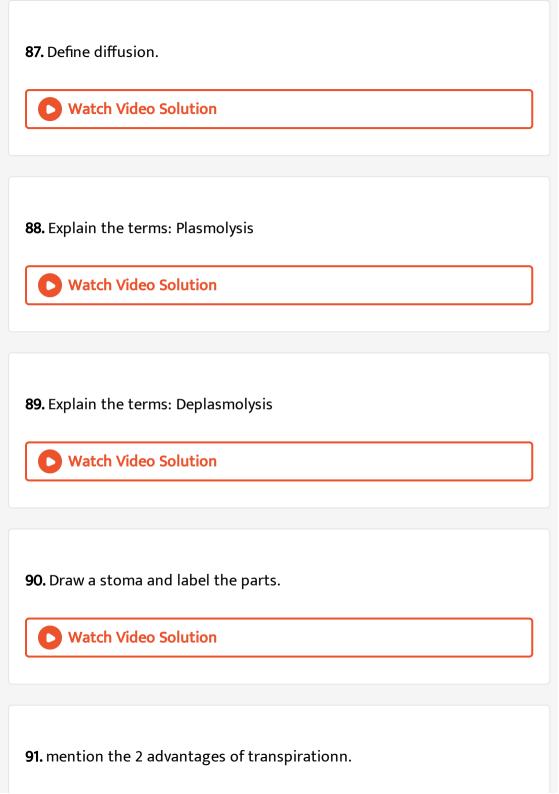
77. Opening and closing of stomata is due to the
A. Hormonal changes in guard cell.
B. Change in turgor pressure of guard cells.
C. Gaseous exchange
D. Respiration
Answer:
Watch Video Solution
<b>78.</b> Solution outside a cell has higher concentration than cell sap the solution is
Solution is
A. Isotonic
B. Hypotonic

D. Acidic
Answer:  Watch Video Solution
<b>79.</b> Chlorosis results from the deficiency of
A. Sodium
B. Boron
C. Magnesium
D. Phosphorous
Answer:
Watch Video Solution
80. Critical elements are



82. Which of the following is a macronutrient?
A. Ca
B. Mn
C. Zn
D. Ni
Answer:  Watch Video Solution
83. Nitrogen is an important constituent of
A. Carbohydrates
B. Sugars
C. Proteins

D. Polyphosphates
Answer:
Watch Video Solution
84. What is water potential?
Watch Video Solution
85. Write two uses of water?
Watch Video Solution
<b>86.</b> Define : Ascent of Sap.
Watch Video Solution



Watch Video Solution
92. Why is transpiration called a necessary evil?
Watch Video Solution
93. Explain the process of stomatal transpiration.
Watch Video Solution
94. Explain the mechanism of cohesion theory.
Watch Video Solution
<b>95.</b> Describe the course of translocation of organic sap and its mechanisms.
Watch Video Solution

**96.** With the help of a diagram explain the two pathways of water across the root cells.



**Watch Video Solution** 

**97.** What is transpiration? Describe the three types of transpiration.



**Watch Video Solution**