BIOLOGY

BOOKS - PREMIERS PUBLISHERS

TRANSPORTATION IN PLANT

Textbook Questions Answers Choose The Correct Answers

1. DPD of a fully turgid cell is equal to

A. DPD=10 atm, Op=5 atm,TP=10 atm

B. DPD=0 atm,OP=10atm, TP=10 atm

C. DPD= 0 atm,OP=5 atm,TP=10atm

D. DPD=20 atm,OP=20 atm,TP=10 atm

Answer: B

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2. Which among the following is correct ?

(i) apoplast is fastest and operate in non-living part

(ii) Transmembrane route includes vacuole

(iii) symplast interconnect the nearby cell through plasmadesmata

(iv) symplast and transmembrane route are in living part of the cell

A. (i) and (ii) Only

B. (ii) and (iii) only

C. (iii) and (iv) only

D. All of these

Answer: C

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3. What type of transpiration is possible in the xerophyte Opuntia ?

A. Stomatal

B. Lenticular

C. Cuticular

D. All the above

Answer: B

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4. Stomata of a plant open due to

A. Influx of K^+

B. Efflux of K^+

C. influx of Cl^-

D. Influx of OH^-

Answer: A

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5. Munch hypothesis is based on

A. Translocation of food due to TP gradient and imbibition force

B. Translocation of food due to TP

C. Translocation of food due to imbibition force

D. None of the above

Answer: B

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6. If the concentration of salt in the soil is too high and the plants may wilt even if the field is thoroughly irrigated. Explain.

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7. How phoshorylase enzyme open the stomata in starch sugar interconversion theory ?

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8. List out the non- photosynthetic parts of a plant that need a supply of sucrose ?

A. Roots

B. Tubers

C. Developing fruits and

D. Immature leaves

Answer:

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9. What are the parameters which control water potential ?

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10. An artificial cell made of selectively permeable membrane is immersed in a beaker (in the figure). Read the values and answer the following questions.

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11. An artificial cell made of selectively permeable membrane is immersed in a beaker (in the figure). Read the values and answer the following questions.

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12. An artificial cell made of selectively permeable membrane is immersed in a beaker (in the figure). Read the values and answer the

following questions.

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13. An artificial cell made of selectively permeable membrane is immersed in a beaker (in the figure). Read the values and answer the following questions.

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14. An artificial cell made of selectively permeable membrane is immersed in a beaker (in the figure). Read the values and answer the following questions.

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Other Important Questions Answers I Choose The Correct Answer

1. In plants,cell to cell transport is aided by:

A. Diffusion alone

B. osmosis alone

C. imbibition alone

D. All the three above

Answer: D

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2. In passive transport:

A. No energy expenditure is required

B. No involvement of physical forces like gravity

C. no involvement of physical forces like gravity

D. No involvement of osmosis

Answer: A

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3. Which of the following statement are correct?

(i) Cell membranes allow water and non polar molecular to prmeate by simple diffusion.

(ii)Polar molecules like amino acids can also diffuse through membrane.

(iii)Smallermolecules diffuse faster than larger molecules.

(iv)Larger molecules diffuse faster than smaller molecules.

A. (i) and (iv) only

B. (i) and (iii)Only

C. smaller molecules diffuse faster than larger molecules

D. (ii) and (iv) only

Answer: B

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4. In co-transport across membrane:

A. Two different molecules are transported the same direction

B. Two type of molecules are transported the same direction.

C. Three types of molecules are transported in opposite direction.

D. Two type of molecules are transported in all direction.

Answer: B

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5. The swelling of dry seeds is due to phenomenon called:

A. Osmosis

B. Transpiration

C. imbibition

D. None of the above

Answer: C

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6. The concept of water was introduced by:

A. Slatyer and Mosses

B. Slatyer and Taylor

C. Armusten and Taylor

D. Mosses and Robert

Answer: B

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7. At Strandard temperature the water potential pure water is:

A. 1.0

B. -1.0

C. 0.5

D. Zero

Answer: D

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8. Addition of solute to pure water:

A. Increases water potential

B. Does not charges water potential

C. decreases water potential

D. Does not change the gradient of water potential

Answer: C

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9. Osmotic pressure is increased with:

A. Decrease of dissolved solute in the solution

B. Increased of dissolved solutes in the solution

C. increase of solvent in a solution

D. Isotonic condition of the solution

Answer: B

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10. Diffusion Pressure Deficit (DPD) Was termed by Meyer in:

A. 1928

B. 1828

C. 1936

D. 1938

Answer: D

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11. The root hairs are:

A. Unicellular extensions of epidermal cells with cuticle

B. Unicellular extensions of epidermal cells with cuticle

C. Unicellular extensions of epidermal cells without cuticle

D. None of the above

Answer: C

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12. Kramer (1949) recognised two distinct mechnisms,which independently operate in the absorption of water in plants are:

A. Osmosis and diffusion

B. Imbibition and diffusion

C. diffusion and absorption

D. Active absorption and passive absorption

Answer: D

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13. Indicate the correct statements:

(i)The cell sap concentration in xylem is always high.

(ii)The cell sap concentration in xylem is not always high.

(iii)root pressure is not universal in all plants

(iv)Roots pressure is univrsal in all plants.

A. (i) and (iv)Only

B. (ii) and (iii)only

C. (i) and (iii)only

D. (ii) and (iv) only

Answer: B

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14. When respiratory inhibitors like KCN Chlorodorm are applied:

A. There is a decrease in the rate of respiration and increase in the rate of absorption of absorption of water.

B. There is an increaase in the rate of respiration and decrease in the rate of absorption of water.

C. there is a decrease in the rate of respiration and also decreases in the rate of absorption

D. There is an increase in the rate of respiration and also in the rate of absorption of water.

Answer: C

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15. Relay pump theory was put forth by ..... .

A. J.C Bose

B. Godlewski

C. Stoking

D. Strasburger

Answer: B

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16. Pulsation theory was proposed by _____ .

A. Strasburger

B. Godsey

C. J.C. Bose

D. C.V Raman

Answer: C

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17. The term 'root pressure' was coined by:

A. Strasburger

B. Stephen Hales

C. Amstrong

D. Overton

Answer: B

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18. Indicate the correct statements:

(i)Roots pressure is absent in gymnosperms

(ii)Roots pressure in totally absent in angiosperms

(iii)There is a relationship between the ascent of sap and root pressure.

(iv)There is no relationship between the ascent of sap and root pressure.

A. (i) and (ii)

B. (ii) and (iii)

C. (ii) and (iv)

D. (I) and (iv)

Answer: D

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19. The capillary theory was suggested by :

A. Unger

B. J.C. Bose

C. Boehm

D. Sachs

Answer: C

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20. Cohesion and transpiration pull theory was originally proposed by:

A. Unger and Sachs

B. Xavier and Dixon

C. Boehm and Jolly

D. Dixon and Jolly

Answer: D

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21. Loss of water from mesophyll cells causes:

A. Increases in water potential

B. Decrease in water porential

C. Does not changes in water potential

D. None of tha above events

Answer: B

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22. The water may move through the xylem at the rate as fast as:

A. 65 cm/min

B. 85 cm/mibn

C. 75 cm/ min

D. 45 cm/min

Answer: C

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23. The length and breadth of stomata is:

A. About 10-30 μ and 2-10 μ respectively

B. About 10-14 μ and 3-10 `mu respectively

C. about 10-40 μ and 3-10 μ respectively

D. About 5-30 and 5-10 μ respectively

Answer: C

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24. The opening and closing of stomata depends upon the change in pH of guard cells.This is observed by:

A. Loftfield

B. Sayre

C. Von Mohl

D. Amstrong

Answer: B

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25. Who did observe that stomata open in light and close in the night:

A. Unger

B. Sachs

C. Boehm

D. Von Mohl

Answer: D

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26. the phosphory enzyme in guard cells supports the strach-sugar inter conversion theory.The above reaction is:

A. Oxidation reaction

B. Hydrolyses reaction

C. reduction reaction

D. None of the above

Answer: B

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27. Low pH and a shortage of water in th e guard cell activate the stress hormone namely:

A. Ascorbic acid

B. Malic acid

C. Abscisic acid

D. Salisilic acid

Answer: C

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28. Accumulation of CO_2 in plant cell during dark:

A. Increases the pH level

B. Decreases the pH level

C. Does not alter pH

D. decrease in H^+ ion concentration

Answer: B

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29. Phenyl Mercuric Acetate(PMA),When applied as a foliar spray to plant:

A. Induce partial stomatal closure for two weeks.

B. Induces partial stomatal opening for two weeks

C. induces partial stomatal closure for four weeks

D.

Answer: A

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30. The transpiration in plants is a"necessary evil" as stated by:

A. Steward

B. Sayre

C. Curtis

D. Meyer

Answer: C

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31. Sink in plants which receives food from source is:

A. Tubers

B. Developing fruits

C. roots

D. All the three above

Answer: D

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32. Activated diffusion theory was first proposed by:

A. Fenson and Spanner

B. Mason and Maskell

C. Crafts and Munch

D. Hanes and Robert

Answer: B

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33. From siece elements sucrose is translocated into sink organs such as root.tubers etc and this process is termed as:

A. Xylem unloaing

B. Xylem uploading

C. Phloem unloading

D. Phloem uploading

Answer: C

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34. In which plant ,the petioles are flatterned and widened ,to become phyllode:

A. Asparagus

B. Acacia melanoxylon

C. Vinca rosea

D. Delonix regia

Answer: B

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35. Match the following :

(i) Opuntia	*(a) Cladode*
(ii) Acacia	*(b) Guttation*
(iii) Asparagus	*(c) Phyllode*
(iv) Alocasia	*(d) Phylloclade*

A. i-b,ii-d,iii-a,iv-c

B. i-b,ii-c,iii-a,iv-a

C. i-b,ii-d,iii-a,iv-c

D. i-c,ii-b,iii-d,iv-a

Answer: C

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36. Hydathodes are generally present in plants that grow in:

A. Dry places

B. Moist and shady places

C. sunny places

D. deserts

Answer: B

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37. Ganongs potometer is used to measure:

A. The rate of photosynthesis

B. The rate of gaseous transport

C. the rate of water transport

D. The rate of transpiration

Answer: D

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38. Indicate the correct statement:

A. Anti-transpirants increase the loss of water by transpiration

B. Anti-transpirants do not alter the rate of transpiration

C. Anti-transpirants do not decrease the loss water by transpiration in cross plants.

D. Anti-transpirants reduce the enormous loss of water by transpiration in crop plants.

Answer: D

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39. The liquid coming out of hydathode of grasses is:

A. Pure water

B. Not pure water

C. a solution containing a number of dissolved substances

D. Salt water

Answer: C

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40. A dry cobalt chloride strip,when hydrated,turns:

A. White

B. red

C. Green

D. pink

Answer: D

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Other Important Questions Answers Ii Answer The Following

1. What is the need for transport of materials in plants?

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2. What are the type of transport based on the distance travelled by the marerials?

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3. Define the term diffusion

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4. Define the term semipermeable.

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5. What is porin?

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6. Define symport or co-transport?

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7. Explain the term counter transport.

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8. What is the difference between co-transport and counter transport?

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9. What is imbibition ?

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10. Give examples of imbibition.

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11. Define osmotic potential

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12. What is transpiration?

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13. What is osmotic pressure?

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14. Explain the term wall pressure exerted by the cell well.

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15. Define the term osmosis.

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16. What is meant by isotonic solution?

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17. Name the three types of plasmolysis

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18. Explain briefly about root hairs.

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19. Define active absorption.

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20. Explain briefly the term stomatal transpiration

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21. Write the objections related to starch-sugar interconversion theory?

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22. Breifly explain plant anti-transpirants.

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23. Mention any two uses of anti-transpirants.

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24. Define translocation of organic solutes.

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25. Define the term Ion-Exchange.

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Other Important Questions Answers Iii Answer The Following

1. What are aquaporin ?

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2. Write a note on carrier protein.

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3. Define osmotic potential

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4. Explain the types of osmosis.

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5. Explain osmosis with the demonstration of potato osmoscope.

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6. What is reverse osmosis?

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7. Give details of symplast route of water movement.

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8. Describe the non-osmotic active absorption theory proposed by Bennet-Clark in 1936.

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9. Mention the objections to vital force theory of Ascent of sap.

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10. Explain the capillary theory of Boehm (1809).

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11. Give a brief account of Lenticular transpiration.

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12. Explain the theory of photosynthesis in guard cells obeserved by Von Mohl with its demerits.

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13. What are the three types of wilting in plants?Explain them breifly.

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14. Guttation - Explain.

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15. What are the significance of transpiration.

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16. What do you understand by the term source and sink in plant physiology ?

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17. Why plants transport sugars as sucrose and not as starch or glucose or fructose?

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18. What do you mean by Phloem loading ?

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19. Explain the term Donnam equilibrium.

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Other Important Questions Answers Iv Answer The Following

1. Define the term osmosis.Give details of the types of osmosis in plants.

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2. Give an account of active absorption theories with their demerits.

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3. Explain in detail about the cohesion tension theory proposed by Dixon and Jolly (1894).

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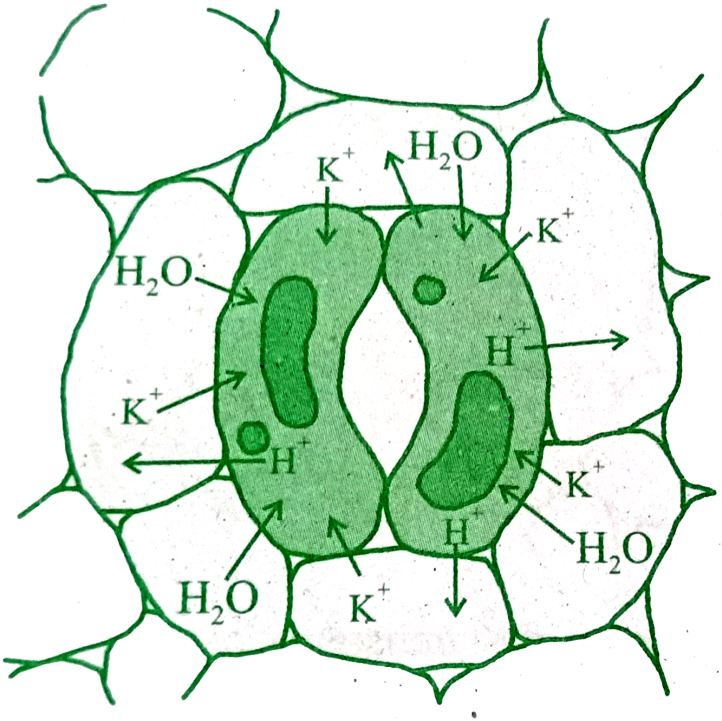
4. Describe the theory of K^+ transport theory of stomatal opening.



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5. Give an account of external factors affect the rate of transpiration.

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6. Describe the method of Ganongs potometer to measure the rate of tranpiration.

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7. Explain Munch mass flow hypothesis and its applications to plants.

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8. Describe Lundegardh's Cytochrome Pump Theory .

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Solution To Activity

1. Imbibition experiment :

Collect 5 gm of from from Drumstick tree or babool tree or Almond tree.Immerse in 100ml

of water .After 24 hours observe the changes and discuss the results with your teacher.

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2. Find the role of turgor pressure in sudden closing of leaves when we touch the touch me not plant.

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3. Select a leafy twig of fully grown plant in your school campus .Cover the twig with a transparent polythene bag and lie the mouth of the bag at the bae of the twig.Observe the changes after two hours and disscuss with your teacher.

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4. What will happen if an indoor plant is placed under fan and AC?

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