



BIOLOGY

NCERT - FULL MARKS BIOLOGY(TAMIL)

TRANSPORT IN PLANTS

Question

1. What are the factors affecting the rate of diffusion?



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2. What are porins? What role do they play in diffusion?



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3. Describe the role played by protein pumps during active transport in plants.



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4. Explain why pure water has the maximum water potential.



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5. Differentiate between the following:

(a) Diffusion and Osmosis

(b) Transpiration and Evaporation

(c) Osmotic Pressure and Osmotic Potential

(d) Imbibition and Diffusion

(e) Apoplast and Symplast pathways of

movement of water in plants.

(f) Guttation and Transpiration.



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6. Briefly describe water potential. What are the factors affecting it?



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7. What happens when a pressure greater than the atmospheric pressure is applied to pure

water or a solution?



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8. (a) With the help of well-labelled diagrams, describe the process of plasmolysis in plants, giving appropriate examples.

(b) Explain what will happen to a plant cell if it is kept in a solution having higher water potential.



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9. How is the mycorrhizal association helpful in absorption of water and minerals in plants?



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10. What role does root pressure play in water movement in plants?



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11. Describe transpiration pull model of water transport in plants. What are the factors influencing transpiration? How is it useful to plants?



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12. Discuss the factors responsible for ascent of xylem sap in plants.



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13. What essential role does the root endodermis play during mineral absorption in plants?



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14. Explain why xylem transport is unidirectional and phloem transport bi-directional.



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15. Explain pressure flow hypothesis of translocation of sugars in plants.



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16. What causes the opening and closing of guard cells of stomata during transpiration?



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Evaluation

1. In a fully turgid cell

A. $DPD = 10 \text{ atm}$, $OP = 5 \text{ atm}$, $TP = 10 \text{ atm}$

B. $DPD = 0 \text{ atm}$, $OP = 10 \text{ atm}$, $TP = 10 \text{ atm}$

C. $DPD = 0 \text{ atm}$, $OP = 5 \text{ atm}$, $TP = 10 \text{ atm}$

D. $DPD = 20 \text{ atm}$, $OP = 20 \text{ atm}$, $TP = 10 \text{ atm}$

Answer:



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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

B. ii and iii

C. iii and iv

D. i, ii, iii, iv

Answer:



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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:



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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:



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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:



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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 phosphorylase 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 ?



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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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