1. In hypertonic solution a cell water potential
(a) Decreases (b) Increases
(c) First increases then decreases (d) No change

2. By cutting the ring of phloem which of the following process is affected
(a) Downward flow of sugars
(b) Upward flow of salts
(c) Distribution of hormones
(d) All the above

3. Absorption of water by root is increased by
(a) Increase in transpiration
(b) Increase in the rate of photosynthesis
(c) Decrease in transpiration
(d) Decrease in salt uptake

4. According to Sachs theory, the ascent of sap takes place
(a) In xylem ducts with the help of imbibition
(b) In the phloem with the help of imbibition
(c) In pith with the help of imbibition
(d) All of the above

5. The soil is said to be physiologically dry when
(a) It has no hygroscopic water
(b) The concentration of soil solution is higher than inside roots
(c) Soil temperature is 0° *C*
(d) In (b) and (c) cases

6. Many transplanted seedling may not survive because
(a) They do not like the new soil
(b) They do not get required mineral salts
(c) Most of the root hairs are lost during transplantation
(d) The leaves get damaged

7. Which soil is most suitable to water uptake
(a) Sandy soil (b) Clay soil
(c) Loamy soil (d) None of these

8. In many epiphyte (Orchid) plants which tissue is present in cortex of root and helps in water uptake
(a) Velamen (b) Cork cambium
(c) Pericycle (d) Medullary rays

9. When a potted plant is flooded with water, the magnitude of root pressure
(a) Increases (b) Decreases
(c) Remains unchanged (d) Becomes negative

10. The force of tension cohesion exceeds root pressure on a
(a) Rainy day (b) Foggy morning
(c) Sunny day (d) Full moon night

11. At mid day hours, the xylem sap is in a state of
(a) Compression (b) Tension

(c) Relaxation (d) Adhesion

12. Which of the following factors affect the absorption of water by roots
(a) Soil temperature (b) Soil aeration
(c) RH of the atmosphere (d) All the above

13. When the temperature of a soil becomes 1°, then
(a) Absorption of water increases
(b) Absorption of water decreases
(c) Passive absorption of water remains unaffected
(d) Absorption of salt increases

14. Suitable temperature for active absorption of water by root is
(a) 40-45° *C*
(b) 10-15° *C*
(c) 20-35° *C*
(d) Can take at any temperature

15. Water-logged condition will quickly occur in which type of soil
(a) Sand (b) Clay
(c) Gravel (d) Loam

16. That the cell membrane is selectively permeable can be best deduced by
(a) The entry of water from root hair
(b) The entry of mineral salts from the root hair
(c) Both together
(d) The rise of sap in plants

17. Sap ascends in woody stems because of root pressure and
(a) Transpiration pull (b) Capillarity
(c) Molecular adhesion (d) Photosynthesis

18. Most widely accepted explanation for the ascent of sap in tree is
(a) Capillarity
(b) Roll of atmospheric pressure
(c) Pulsating action of living cells
(d) Transpiration cohesion theory of Dixon

19. The most important force which pulls water up in tall trees is
(a) Imbibition force (b) Osmotic force
(c) Cohesive force (d) Electromagnetic force

20. Roots will absorb water when external medium will be
(a) Hypotonic (b) Hypertonic
(c) Isotonic (d) Concentrated

21. Which can function as carrier in active ion absorption
(a) Cytochrome (b) Ferredoxin
(c) Lecithin (d) Plastoquinone

22. Water will be absorbed by root hairs when
(a) Concentration of salt in the soil is high

(b) Concentration of solutes in the cell sap is high
(c) Plant is rapidly respiring
(d) They are separated from soil by a permeable membrane

23. The path of water from soil upto secondary xylem is
(a) Soil → Root hair cell wall → Cortex → Endodermis → Pericycle → Protoxylem → Metaxylem
(b) Metaxylem → Protoxylem → Cortex → Soil → Root hair
(c) Cortex → Root hair → Endodermis → Pericycle → Protoxylem → Metaxylem
(d) Pericycle → Soil → Root hair → Cortex → Endodermis → Protoxylem → Metaxylem

24. Physical force theory explains
(a) Non-living cells are not essential for ascent of sap
(b) Living cells are not essential for ascent of sap
(c) Ascent of sap may occur in both living and non-living cells
(d) Both (b) and (c)

25. Absorption of water by root is increased by
(a) Increase in transpiration
(b) Increase in the rate of photosynthesis
(c) Decrease in transpiration
(d) Decrease in salt uptake

26. According to Sachs theory, the ascent of sap takes place
(a) In xylem ducts with the help of imbibitions
(b) In the phloem with the help of imbibitions
(c) In pith with the help of imbibitions
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27. Which soil is most suitable to water uptake
(a) Sandy soil (b) Clay soil
(c) Loamy soil (d) None of these

28. In many epiphyte (Orchid) plants which tissue is present in cortex of root and helps in water uptake
(a) Velamen (b) Cork cambium
(c) Pericycle (d) Medullary rays

29. At mid day hours, the xylem sap is in a state of
(a) Compression (b) Tension
(c) Relaxation (d) Adhesion

30. The plant from which there is rapid transpiration, it will show
(a) Active absorption
(b) Passive absorption
(c) Active osmotic absorption
(d) Active non-osmotic absorption

1. (a)

2. (a)

3. (a) The rate of absorption of water is almost directly proportional to the rate of transpiration. A higher rate of transpiration increases the rate of water absorption.

4. (a) According to imbibitional theory (Sachs 1879), water moves upward in the stem through the imbibitional activity of the walls of the xylem vessels to be responsible for the ascent of sap.

5. (d) It happens due to addition of enough fertilizers in the soil increasing its salinity. This is popularly called as physiological dryness.

6. C

7. (c) Quantity of soil water is high in loamy soil which is easily available to plants.

8. (a) In epiphytes (orchid), the roots develop a special type of hygroscopic tissue called as velamen which can absorb atmospheric moisture.

9. (b) Increased amount of water in the soil beyond a certain limit results in poor aeration of the soil which retards metabolic activities of root cells like respiration and hence, the rate of water absorption is also retarded and magnitude of root pressure is very low (about 2 atms).

10. (c) Because transpiration rate is very high in sunny day.

11. B

12. (d) Soil temp., soil aeration, relative humidity (R.H.), amount of soil water and transpiration are factors affect the absorption.

13. C

14. C

15. (b) Clay particles are tiny and sticky in nature, hence holding capacity is highest in clay soil.

16. (c)

17. (a)

18. (d)

19. (c)

20. (a)

21. (c)

22. (b)

23. (a)

24. (a)

25. (a)

26. (a)

27. (c)

28. (a)

29. (b)

30. (b)