

Arts, Commerce and Science College, Bodwad.

Question Bank

S.Y. B.Sc. Sem-III

Subject: - Plant Physiology (Botany)

1. In the rainy season, doors get swelled up due to

(a) Transpiration

(b) Imbibition

(c) Diffusion

(d) Respiration

2. The study of structural and functional relationship of plant is known as

a) Plant Embryology

b) Plant physiology

c) mushroom cultivation

d) Plant Ecology

3. Name the term which is given for the movement of water through a semipermeable membrane?

a) Diffusion

b) Osmosis

c) Tonicity

d) Transpiration

4. The pressure which exerts outward from the cell wall is known as turgor pressure?

a) True

b) False

5. Name the condition in which protoplast of the plant cell shrinks away.

a) Turgid

b) Plasmolysis

c) Flaccid

d) Rigid

6. Which of the following type of solution has lower levels of solutes than the solution?

a) Isotonic

- b) Hypertonic
- c) Hypotonic**
- d) Anisotonic

7. 9. The outer solution having equal concentration as that of the cell sap is called

- (A) Hypotonic solution
- (B) Isotonic solution**
- (C) Hypertonic solution
- (D) Neutral solution

8. The most widely accepted theory for ascent of sap is

- (A) Root pressure theory
- (B) Pulsatory theory
- (C) Capillarity theory
- (D) Cohesion theory**

9. Which of the following physical forces are supposed to be responsible for ascent as sap?

- (A) Imbibition
- (B) Capillary force
- (C) Transpiration pull and cohesion**
- (D) Root pressure

10. Upward movement of water in plants is

- (A) Transpiration
- (B) Ascent of sap**
- (C) Exudation
- (D) Sucking

11. Stomata open and close due to

- (A) Turgor pressure of guard cells**

(B) Root pressure

(C) Positive pressure

(D) Imbibitional pressure

12. The movement of a substance from an area of high concentration to an area of low concentration.

(A) Osmosis

(B) Diffusion

(C) Active Transport

(D) Imbibition

13. Active osmotic water absorption theory was first given by

(A) Atkins and Priestley

(B) Thimann and Kramer

(C) Dixon and Jolley

(D) Levitt

14. The maximum absorption of water by roots occurs in the zone of

(A) Root cap

(B) Cell division

(C) Cell Elongation

(D) Root hairs

15. Root hairs absorb water from soil when

(A) osmotic concentration is same in the two

(B) solute concentration is higher in soil solution

(C) solute concentration is higher in root hairs

(D) absorption is active

16. Which one of the following will not directly affect transpiration?

(A) temperature

(B) light

(C) wind speed

(D) chlorophyll content of leaves

17. Which of the following is an example of imbibition

(A) uptake of water by root hair

(B) exchange of gases in stomata

(C) swelling of seed when put in soil

(D) opening of stomata

18. Root pressure is absent in

(A) Herbaceous plants

(B) Gymnosperms

(C) Dicot plant

(D) Trees

19. Dixon & Jolly are associated with

(A) Cohesion theory of Ascent of sap

(B) Light reaction and Photosynthesis

(C) Dicot plant

(D) Trees

20. Relay pump theory of ascent of sap was proposed by

(A) Goldewski

(B) J.C. Bose

(C) Dixon

(D) Sachs

21. 1. Loss of water from plants in the form of water vapour is called_____

- (A) Surface tension
- (B) Cohesion
- (C) Ascent of sap
- (D) Transpiration**

22. Which of the following statement is NOT true regarding the cuticles of the plant?

- (A) Wax like covering of leaves
- (B) Cutin is the principal substance**
- (C) Polymer of long chain fatty acids
- (D) It is mainly composed of the only cutin

23. How much percentage of total transpiration is done by stomata?

- a) 5-10
- b) 90**
- c) 1-5
- d) 60

24. Name the specialized pores from where guttation takes place.

- a) Stomata
- b) Hydathodes**
- c) Guard cell
- d) Lenticels

26. Which of the following statement is INCORRECT for transpiration?

- a) It occurs by stomata, lenticels, and cuticle
- b) Water comes out as water vapour
- c) It occurs in all plants**
- d) Root pressure is involved

27. The kind of transpiration which occurs through the stomata in leaves is called

- (A) phloem transpiration
- (B) xylem transpiration
- (C) stomatal transpiration**
- (D) guard transpiration

28. The small openings present in stems of plants are classified as

- (A) plasmodesmata
- (B) lenticels**

(C) guard cells

(D) stomatas

29. Stomata open and close due to

(A) circadian rhythm

(B) genetic clock

(C) the pressure of gases inside the leaves

(D) turgor pressure of guard cells.

30. The rate of transpiration slows down when plant

(A) withers

(B) wilts

(C) dies

(D) grows

31. The rate of transpiration depends on

(A) condition of a plant

(B) surroundings

(C) plant's condition and surrounding

(D) temperature

32. When a plant is girdled (ringed)

(A) the root and shoot die at the same time

(B) the shoot dies first

(C) the root dies first

(D) neither root nor shoot will die

33. Plant cooling occur due to

- (A) Assimilation
- (B) Guttation
- (C) Photorespiration
- (D) Transpiration**

34. Which of the followings is trace element?

- (a) Ca
- (b) K
- (c) Mg
- (d) Cu**

35. Chlorotic patches appear due to deficiency of:

- (a) Ca
- (b) Na
- (c) S
- (d) Fe**

36. _____ are the elements, without which, the plants will not be able to complete its life cycle.

- (A) Fertilizers
- (B) Microelements
- (C) Macroelements
- (D) Essential element**

37. _____ is a trace element

- (A) Phosphorous
- (B) Carbon
- (C) Magnesium
- (D) Sodium**

38. Deficiency of _____ causes chlorosis in older leaves

- (A) Calcium
- (B) Magnesium**
- (C) Sodium
- (D) Nitrogen

39. _____ is a technique where the plants are grown with their roots suspended in the air.

- (a) Osmosis
- (b) Aerophytes
- (c) Aerosolization
- (d) Aeroponics**

40. Ion uptake is active because -----

- (A) Energy is expended**
- (B) Ions are active
- (C) Ions move freely
- (D) Ions Moves passively

41. Minerals are absorbed in

- (A) Meristematic zone
- (B) Root hair zone
- (C) Elongation zone**
- (D) Root cap zone

42. which group is included in macronutrients.

- (A) H, Mn, S
- (B) S, P, Ca, Mg**
- (C) Mn, Cu, N
- (D) Na, Cl

43. Ion can be accumulated against concentration gradient due to?

- a) Mass flow
- b) Active uptake**
- c) Passive uptake

d) Donnan equilibrium

44. NPK denotes-----

(A) nitrogen, phosphorus, and potassium,

(B) Nitrogen, Protein , and kinetin

(C) Nitrogen, Pottasium , and kinetin

(D) Nitrogen, Protein , and Potassium

45. Yellowing of leaves is known as _____

(a) Tylosis

(b) Necrosis

(c) Florosis

(d) Chlorosis

46. Necrosis in plants Is

(A) Yellow spot on the leaves

(B) Death of tissue and decomposition

(C) Darkening of green coloured leaves

(d) None

47. Which of the following hormone is found in gaseous form?

A. Florigens

B. Abscisic Acid

C. Ethylene

D. Auxin

48. Name the plant hormone which is responsible for the ripening of fruits?

A. Ethylene

B. Auxin

C. Traumatic

D. Cytokinins

49. Which of the following statement is incorrect?

A. Auxins are the most important plant hormone.

B. Auxins are produced at the region of elongation.

C. Indoleacetic Acid (IAA) is a principal auxin.

D. Auxins are also important in regulating the fall of leaves and fruits.

50. Which hormone is formed in leaves and helps in the blooming of the flowers?

A. Traumatic

B. Auxin

C. Florigens

D. None of the above

51. Name the plant hormone which increases the activity of cambium in the wooden plants?

A. Gibberellins

B. Cytokinins

C. Auxins

D. Ethylene

52. Who used the term phytohormones for the plant hormone?

A. Thimann

B. Went

C. Balls

D. Morgan

53. Which of the phytohormone was discovered first

A. Auxin

B. Gibberlin

C .Cytokinin

D. Ethylene

54. The true natural auxin of higher plants is

a) Indole-3 acetic Acid

b) Indole-3 acetaldehyde

c) Indole-3 pyruvic Acid

d) Indole-3 nitric Acid .

55. auxins are abundantly produced in

a) Shoot

b) Root

c) Leaf bud

d) Meristematic region of the stem

56. Growth regulators, which control plant growth and development are called_____

a) Secondary metabolites

b) Macro element

c) Nonessential elements

d) Phytohormone

57. Which of the following is NOT a plant hormone?

a) Corticosteroid

b) Brassinosteroid

c) Polyamines

d) Salicylic acid

58. Mark the one, which is NOT a physiological effect of auxin?

a) Cell elongation

b) Stem elongation

c) Cell differentiation

d) Rooting

59. Name the site of Gibberellins synthesis

a) Endosperm

b) Coleoptile tip

c) Young leaves

d) Scetullum

60. Which of the following plant hormone is responsible for seed germination?

a) Auxin

b) Gibberellin

c) Ethylene

d) Abscisic acid

61. Name the first naturally occurring cytokines.

a) Neoxanthin

b) Xanthoxin

c) Zeatin

d) Isopentenyl adenine

62. Name the stress hormone of the plant.

a) Brassinosteroid

b) Abscisic acid

c) Cytokines

d) Ethylene

63. Deficiency in which of the following hormone causes dwarfism in the plant?

a) Ethylene

b) Abscisic acid

c) Gibberellin

d) Brassinosteroid

64. The hormone which promote apical dominance is:

a) Gibberellins

(b) Auxins

(c) ethene

(d) Cytokinins

65. Abscission is prevented by:

(a) Gibber-Inns

(b) Auxins

(c) ethene

(d) Cytokin ins

66. What part of the plant is actively doing the work during active absorption of water?

(A) The root hairs

(B) The shoots

(C) The leaves

(D) The xylem

67. Root pressure is due to

A) Increased transpiration

B) Passive absorption

C) Increased turgidity

D) Active absorption

68. Maximum root pressure is observed when

A) Transpiration is high and absorption is low

B) Transpiration is low and absorption is high

C) Transpiration and absorption are very high

D) Transpiration and absorption are very low

69. The existence of root pressure can be demonstrated by

A) Bleeding

B) Wilting

C) Transpiration

D) Exudation or bleeding

70. In a plant cell, O.P. is equal to

A) T.P. – D.P.

B) D.P.D. + T.P.

C) T.P. – D.P.D

D) D.P.D. – T.P.

71. Stomata opens because the guard cells have-

A) Inner thick walls

B) Kidney shape

C) Outer thin walls

D) Chloroplast

72. The special modified epidermal cells surrounding stomatal pore are called

A) Subsidiary cells

B) Accessory cells

C) Guard cells

D) Epithelial cells

73. DPD of flacid cell and turgid cell is _____ and _____ respectively.

A) Zero and Maximum

B) Minimum and Maximum

C) Zero and zero

D) Maximum and Minimum

74. The magnitude of root pressure will be minimum in

- A) During ascent of sap
- B) Fast transpiring angiosperms
- C) Wilting plant
- D) Rainy season**

75. Cohesion of water molecules is due to _____

- A) Surface tension**
- B) Gravitational force
- C) Diffusion
- D) Osmosis

76. Which of the following is NOT the property of water?

- A) Non polar molecule**
- B) High specific heat
- C) High heat of vaporization
- D) Excellent solvent

77. A cell increase in volume when it is placed in

- A) Hypotonic solution**
- B) Isotonic solution
- C) Hypertonic solution
- D) None of these

78. In plants, water rises upwards through

- A) Xylem**
- B) Pholem
- C) Cambium
- D) Stomata

79. What is plasmolysis?

A) The process of water leaving a plant cell, causing the cytoplasm to shrink away from the cell wall

B) The process of water entering a plant cell, increasing turgor pressure

C) The process of creating a water balance that causes the plant to stand up straight

D) The process of water entering a plant cell, causing the plant to wilt

80. The membrane that allows some of solute molecules to pass through it and prevent others is called

A) Permeable membrane

B) Semipermeable membrane

C) Selectively or differentially permeable membrane

D) Impermeable membrane

81. The external solution having more concentration than the cell sap is called

A) Hypertonic solution

B) Isotonic solution

C) Hypotonic solution

D) None of the above

82. The pressure exerted by wall of the cell on the protoplast is

A) W.P

B) T.P

C) D.P

D) O.P

83. Net movement of water is from

A) Low DPD to high DPD

B) High DPD to low DPD

C) DPD gradient plays no role

D) None of the above

84. Cell turgidity is caused by

A) Endosmosis

B) Exosmosis

C) Plasmolysis

D) Diffusion

85. Fresh grapes shall shrink when they are placed in

A) Hot water

B) Cold water

C) Starch water

D) Concentrated salt solution

86. O.P of a solution can be measured by

A) Photometer

B) osmometer

C) Calorimeter

D) Plasmolysis

87. The common material used in demonstrating plasmolysis in the laboratory is

A) Garden nasturtium

B) Balsam

C) Banyan

D) Tradescantia

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

A) Toxic effects of chemical (fertilizers) compounds

B) Plasmolysis due to high concentration of fertilizers

C) Failure of physiological processes like photosynthesis and respiration

D) None of the above

89. The pressure that prevails in cell due to number of substance dissolved in cell sap is

- A) Wall pressure
- B) Turgor pressure
- C) Osmotic pressure**
- D) Diffusion pressure

90. The selectively permeable membrane of the cell is

- A) Plasmalemma**
- B) Cytoplasm
- C) Cell wall
- D) None of the above

91. The plasmolysed cells regain turgidity and assume original volume under influence of hypotonic solution. The process is called

- A) Plasmolysis
- B) Deplasmolysis**
- C) Endosmosis
- D) Exosmosis

92. Diffusion pressure deficit is the amount by which two solutions differ in their

- A) T.P
- B) O.P
- C) D.P**
- D) W.P

94. Endosmosis takes place when a plant cell is immersed in

- A) Isotonic solution
- B) Hypotonic solution**
- C) Hypertonic solution
- D) HCl solution

95. Imbibitions occurs when

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

96. Osmotic potential of pure water is

- A) One
- B) Zero**
- C) Less than zero
- D) Between zero and one

97. Water potential is the sum of opposing forces of

- A) Osmotic pressure and diffusion pressure deficit
- B) Solute potential and osmotic potential
- C) Solute potential and pressure potential**
- D) Diffusion pressure deficit and turgor pressure

98. Passage of water across a selectively permeable membrane is

- A) Active transport
- B)Pinocytosis
- C) Facilitated diffusipon
- D) Osmosis**

99. Stomatal aperture is surrounded by guard cells and widens (opens) when guard cells are

- A) Flaccid
- B) Turgid**
- C) Bean shaped
- D) Dumb-bell shaped

100. Transpiration is high under

- A) Dry environment
- B) Low atmospheric pressure
- C) High temperature
- D) All the above