

Shivaji University, Kolhapur

Question Bank for Mar 2022 (Summer Examination)

Subject code- 73303

Subject name- Plant Physiology

Q. 1 Multiple Choice Questions

- 1) The shrinkage of protoplasm due to loss of water is called.....
 - a) Exoosmosis
 - b) Endoosmosis
 - c) Plasmolysis
 - d) Diffusion
- 2)..... principal water conducting element in Angiosperm.
 - a) Tracheid
 - b) Vessel
 - c) Sieve tube
 - d) Companion cell
- 3) Diffusion of water molecules through semipermeable membrane is called.....
 - a) Transpiration
 - b) Osmosis
 - c) Plasmolysis
 - d) Glycolysis
- 4) In dicot plants guard cells areshaped.
 - a) Kidney
 - b) Dumbel
 - c) Apple
 - d) Conical
- 5) In monocot plants guard cells areshaped.
 - a) Kidney
 - b) Dumbel
 - c) Apple
 - d) Conical
- 6) Transpiration mainly occurs through.....
 - a) Root
 - b) Stem
 - c) Leaf
 - d) Flower
- 7) Internal factor affecting transpiration is
 - a) Temperature
 - b) Pressure
 - c) Light
 - d) Root- shoot ratio
- 8) During day time starch is converted in to glucose phosphate by enzyme
 - a) Phosphatase
 - b) Carboxylase
 - c) Phosphorylase
 - d) Catalase
- 9) The conversion of starch in to glucose phosphate takes place during night with pH.....
 - a) 5
 - b) 7
 - c) 8
 - d) 12
- 10) Donnan equillium is..... uptake of mineral.
 - a) Active
 - b) Passive
 - c) Positive
 - d) Negative
- 11) acts as proton pumps.

- a) NADP b) AMP c) ATPase complex d) FAD
- 12) Cell wall is
- a) Permeable b) Impermeable
c) Differentially permeable d) Semi-permeable
- 13)is very long tube like tracheary element.
- a) Tracheid b) Vessel c) Sieve tube d) Companion cell
- 14) Cation exchange is uptake a minerals.
- a) Passive b) Active c) Negative d) Positive
- 15) Chemical potential means
- a) Free energy available per molecule of the substance
b) Energy available per molecule of the substance
c) Energy of cell sap
d) Energy of nucleus
- 16)is a membrane phospholipid.
- a) Lecithin b) Lucien c) Valine d) Cytosin
- 17)numbers of elements are essential for proper growth of plant.
- a) 11 b) 17 c) 25 d) 30
- 18) C, H and O are to plants.
- a) Macronutrients b) Micronutrients
c) Complete nutrients d) Incomplete nutrients
- 19).....are known as protoplasmic elements.
- a) S, P, N b) N, P, K c) C, N, O d) Ca, N, P
- 20)are known as framework elements.
- a) C, H, O b) N, P, K c) C, N, O d) Ca, N, P
- 21)is essential for process of cell division.
- a) Calcium b) Carbon c) Phosphorus d) Boron
- 22)acts as an activator for enzyme malic dehydrogenase.
- a) Phosphorus b) Iron c) Manganese d) Calcium
- 23) Blossom end rot disease is due to deficiency of
- a) Phosphorus b) Iron c) Magnesium d) Calcium

- 24) Rosette disease is due to deficiency of
- a) Potassium b) Iron c) Magnesium d) Calcium
- 25) Ferrous sulphate is used for deficiency recovery of
- a) Iron b) Phosphorus c) Magnesium d) Calcium
- 26) is important constituent of chlorophyll.
- a) Boron b) Zinc c) Magnesium d) Calcium
- 27) Potassium deficiency is responsible for disease.
- a) Die-back b) Blast c) Pahl blight d) Marsh spot
- 28) deficiency is responsible for sickle leaf disease.
- a) Calcium b) Potassium c) Magnesium d) Phosphorus
- 29) Calcium is essential to reducetoxicity.
- a) Metal b) Fungal c) Viral d) Bacterial
- 30)are micronutrients to the plants.
- a) Fe and Mn b) Ca and K c) P and K d) C and O
- 31)is chief constituent of middle lamella.
- a) Calcium b) Magnesium c) Potassium d) Iron
- 32) Mottled chlorosis is deficiency symptom of
- a) Calcium b) Phosphorus c) Potassium d) Manganese
- 33) Calcium deficiency causes
- a) Rosette disease b) Blossom end rot disease
c) Grey spec disease d) Die back disease
- 34) is added in the soil for deficiency recovery of calcium.
- a) Lime b) Phosphate c) Potash d) Sulphate
- 35) is a link between organic and inorganic components in the ecosystem.
- a) Plants b) Animals c) Photosynthesis d) Respiration
- 36) Phycobilins are found in
- a) Algae b) Fungi c) Bacteria d) Viruses
- 37) Phycobilins are found in

- a) Algae b) Fungi c) Bacteria d) Viruses
- 38) Carotenoids are chemically.....
- a) Terpenoid b) Porphyrin c) Phenolic d) Tetrapyrrol
- 39) Phycoerythrins are present inalgae
- a) Brown b) Red c) Green d) Yellow
- 40) Phycocyanins are present inalgae.
- a) Blue Green algae b) Red c) Green d) Yellow
- 41) The chemical formula of Chlorophyll b is
- a) $C_{55}H_{70}O_6N_4Mg$ b) $C_{55}H_{74}O_6N_4Mg$
 c) $C_{52}H_{70}O_5N_4Mg$ d) $C_{56}H_{72}O_5N_5Mg$
- 42) Chlorophyll d is present in algal members of division.....
- a) Rhodophyta b) Chlorophyta c) Cyanophyta d) Phaeophyta
- 43) Chlorophyll e is present in algal members of division.....
- a) Xanthophyta b) Chlorophyta c) Cyanophyta d) Phaeophyta
- 44) In chloroplast thylakoids forms.....
- a) Cristae b) Stroma c) Granum d) ETS
- 45) The first CO_2 acceptor in C_3 plant is
- a) Phosphoenol pyruvic acid b) Ribulose diphosphate
 c) Oxalo acetic acid d) Phosphoglyceric acid
- 46) Sugarcane shows high efficiency of CO_2 fixation because it performs
- a) Calvin cycle b) HSK pathway
 c) TCA cycle d) C_5 cycle
- 47) The carbon dioxide acceptor in CAM plants is.....
- a) Malic acid b) Oxalo acetic acid c) Pyruvic acid
 d) Phosphoenol pyruvic acid
- 48) Reaction center of PS II is
- a) P_{700} b) P_{670}
 c) P_{680} d) P_{760}
- 49) Red drop effect was shown by
- a) Hatch b) Calvin c) Benson d) Emerson

- 50) plants shows chloroplast dimorphism.
- a) C₂ b) C₃ c) C₄ d) C₅
- 51)..... is the first stable product in C₄ plants.
- a) Phosphoenol pyruvate b) Ribulose diphosphate
c) Phosphoglyceric acid d) Oxalo acetic acid
- 52) The energy change in photosynthesis is from
- a) Light energy to electrical energy
b) Light energy to solar energy
c) Light energy to chemical energy
d) Chemical energy to activation energy
- 53) The chemical formula of Chlorophyll a is
- a) C₅₅H₇₂O₅N₄Mg b) C₅₅H₇₄O₆N₄Mg
c) C₅₂H₇₀O₅N₄Mg d) C₅₆H₇₂O₅N₅Mg
a) Brown b) Red c) Green d) Yellow
- 54) is the site of photochemical reaction.
- a) Quantasome b) Ribosome c) Chromosome d) Polysome
- 55)is the first phase of Calvin cycle.
- a) Oxidation b) Hydrogenation c) Carboxylation d) Regeneration
- 56) Kranz anatomy is found in.....
- a) Sunflower b) Sugarcane c) Moringa d) Mango
- 57) The first CO₂ acceptor in C₄ plants is
- a) Ribulose diphosphate b) Phosphoenol pyruvic acid
c) Oxalo acetic acid d) Phosphoglyceric acid
- 58) Phase is called as grand period of growth.
- a) Lag b) Log c) Steady d) Senescence
- 59) Maize is an example of
- a) SDP b) LDP c) DNP d) MDP
- 60) Wheat is an example of

- a) SDP b) LDP c) DNP d) MDP
- 61) is a long day plant.
a) Tobacco b) coffee c) Radish d) Rice
- 62) Cabbage is an example plant.
a) SDP b) DNP c) LDP d) PNP
- 63) is day neutral plant.
a) Tomato b) coffee c) Radish d) Rice
- 64) is the precursor for synthesis of Gibberellin in plants.
a) Acetate b) Malate c) Acetyl CoA d) PEP
- 65) Bakane disease of rice is caused by
a) Fungus b) Algae c) Bacteria d) Virus
- 66) Reversion of sex expression is a physiological role of
a) Auxin b) Gibberellin c) Cytokinin d) ABA
- 67) is effective in closing of stomata.
a) IAA b) GA c) Cytokinin d) ABA
- 68) The apical dominance is due to presence of
a) Auxin b) Gibberellin c) Oxalo acetic acid d) Cytokinin
- 69) The growth curve is usually shaped.
a) V b) S c) X d) Z
- 70) Phytochrome pigment exists in forms.
a) Two b) Three c) Four d) Five
- 71) In plants photoperiodic stimulus is received by
a) Root b) Stem c) Leaf d) Flower
- 72) Gibberellic acid like hormone theory was proposed by
a) Hess b) Brian c) Cajlachjan d) Yabuta
- 73) Gene activation theory was proposed by
a) Hess b) Brian c) Cajlachjan d) Yabuta.

74) The initial work on vernalization was done by

- a) Hatch b) Lysenko c) Benson d) Emerson

Q.2 Long Answer Questions

1. What is transpiration? Explain mechanism of stomatal transpiration.
2. Define transpiration? Explain starch- sugar hypothesis of transpiration.
3. Explain briefly water transport through xylem.
4. Explain mechanism of water absorption.
5. Define micronutrients. Give the deficiency symptoms of Fe and Mn.
6. Define macronutrients. Give the role of Ca and Mg.
7. Define macronutrients. Give the deficiency symptoms of P and K.
8. Explain briefly any two micronutrients which you have studied.
9. Give an account of active uptake of minerals.
10. What are essential elements? Describe the symptoms caused due to deficiency of Ca and P.
11. Give an account of passive uptake of minerals.
12. What is photosynthesis? Give the significance of photosynthesis.
13. Explain in brief the photosynthetic apparatus.
14. What is photophosphorylation? Explain the cyclic and noncyclic photophosphorylation.
15. Describe in brief Calvin cycle.
16. Describe crassulacean acid metabolism.
17. What is growth? Explain the dynamics of growth.
18. What is photoperiodism? Give the classification of plants based on photoperiodism .
19. Explain C4 pathway.
20. What is growth? Describe the phases of growth.
21. What is vernalization? Describe in brief mechanism of vernalization.
22. What are phytohormones? Describe physiological role and practical applications of Auxins.

23. Describe physiological role and practical applications of Gibberillins.
24. Describe in brief florigen concept.

Q.2 Short Answer Questions

1. Diffusion
2. Osmosis
3. Water Potential
4. Chemical Potential
5. Physiological Importance of Water
6. Transpiration
7. Stomatal Transpiration
8. Starch Sugar hypothesis
9. Significance of Transpiration
10. Factors Affecting Transpiration
11. Macronutrients
12. Micronutrients
13. Active Uptake
14. Phospholipid hypothesis.
15. Donnan Equilibrium.
16. Physiological role of phosphorus.
17. Physiological role of calcium.
18. Physiological role of iron.
19. Physiological role of magnesium.
20. Deficiency symptoms of potassium.
21. Deficiency symptoms of manganese.
22. Deficiency symptoms of Phosphorus
23. Deficiency symptoms of iron.
24. Structure of Chloroplast
25. Chlorophylls.
26. Significance of Photosynthesis

27. Emersions Enhancement Effect
28. Cyclic Photophosphorylation
29. Non Cyclic Photophosphorylation
30. Significance of C4 Cycle
31. Significance of CAM Pathway
32. Crassulacean Acid Metabolism
33. Calvin Cycle
34. HSK Pathway
35. Grand Period of Growth
36. Phases of Growth
37. Photoperiodism
38. Short Day Plants
39. Long Day Plants
40. Day Neutral Plants
41. Vernalization
42. Phytohormone Gibberellic Acid
43. Florigen Concept

- 44 Applications of Photoperiodism

44. Applications of Vernalization
45. Practical Applications of GA
46. Practical Applications of Auxin
47. Practical Application of Abscisic Acid

