[PART-B : Descriptive]

Time : 2 hrs. 40 min. **Marks : 50**

[Answer question no.1 & any four (4) from the rest]

1. Describe source-sink concept and assimilate partitioning during vegetative and reproductive phase. 4+3+3 =10

2. a. Describe the physiological responses of plants to gibberellins. 6+4=10

   b. Discuss the relationship between gibberellins production and hydrolytic enzyme synthesis and release in germinating barley grain.

3. Write short notes on: 6+4 =10
   a. Classification of amino acids

   b. Collagen triple helix structure

4. Write the differences between chla and chlb .Describe the structure of chlorophyll molecule. 6+4 =10

5. Write short notes on: 5+5=10
   a. "Transpiration is a necessary evil" Justify.
   b. "Donnan equilibrium" theory of solute uptake.

6. What is epigeai and hypogeal germination? Describe the physiological and biochemical changes during germination. 3+7 =10

7. a. How respiration is differ from photorespiration? 5+5=10
   b. Explain the energy release during respiration on the basis of reaction.

8. Discuss about active site of enzyme? Discuss the derivation of Michelis-Menten Rapid equilibrium kinetics. 4+6 =10

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M. Sc. BOTANY
SECOND SEMESTER
ADVANCED PLANT PHYSIOLOGY & BIOCHEMISTRY
MSB – 202(REPEAT)

(Use Separate Answer Scripts for Objective & Descriptive)

Duration : 3 hrs. **Full Marks : 70**

[PART-A : Objective]

Time : 20 min. **Marks : 20**

Choose the correct answer from the following: ***1×20=20***

1. Choose the incorrect statement out of the followings
   a. Only L amino acids are found in the biological system
   b. Glycine is optical inactive
   c. Tyrosine is a modified amino acid
   d. Seleno cysteine is 21 st amino acid

2. Which out of the following is a nonsymbiotic photosynthetic bacteria
   a. Clostridium b. Cytonemataceae
   c. Azotobacter d. Chlorobium

3. Which of the following amino acid is a limiting amino acid in pulses?
   a. Leucine b. Methionine
   c. Lysine d. Glutamine

4. A child with tall stature, loose joints, and detached retinas is found to have a mutation in collagen. Which of the following amino acids is the recurring amino acid most likely to be altered in mutations that distort collagen molecules?
   a. Glycine b. Tryptophan
   c. Tyrosine d. Tyrosine

5. Triacylglycerols are
   a. Insoluble in water
   b. Soluble in water at elevated temperature
   c. Soluble in water
   d. Partially soluble in water

6. Which of the following is not a function of auxin
   a. Inducing dormancy b. Inducing callus formation
   c. Enhancing cell division d. Maintaining apical dominance

7. During the germination of coconut, the major stored food is digested by
   a. α-amylase
   b. lipase
   c. protease
   d. trypsin

8. The enzyme catalyzing the reversible conversion of starch to glucose phosphate in transpiration
   a. Zymase
   b. Catalase
   c. Phosphorylase
   d. Peroxidase

9. Munch's hypothesis accounts for translocation of organic solutes only
   a. Downward direction
   b. Upward direction
   c. Both
   d. Lateral translocation

10. Mineral salts in their ionic form move from one cell to another by
   a. Apoplastic pathways
   b. Transmembrane pathways
   c. Symplastic pathways
   d. All of the above

11. Element responsible for maintain turgor in cell is
   a. Na
   b K
   c. Ca
   d Hg

12. Feed back inhibition in translocation of solutes causes
   a. Increase photosynthesis
   b. Reduce photosynthesis
   c. Both
   d. Increase translocation

13. P-proteion is found in
   a. Xylem
   b. Sieve tube
   c. Companion cell
   d. Phloem parenchyma

14. Photosynthetic pigments are found in chloroplast in the form of pigment protein complexes chiefly in
   a. Stroma
   b. Thylokoids
   c. Stroma lamellae
   d. Outer membrane

15. Which one is most efficient converter of sunlight?
   a. Rice
   b. Sugarcane
   c. Wheat
   d. Mustrad

Contd...

16. Final or terminal electron acceptor in ETS is
   a. Oxygen
   b. Cyt a3
   c. Cyt b
   d. More than one

17. 10 molecules of $NADH_2$ released
   a. 38 ATP
   b. 30 ATP
   c. 10 ATP
   d. 3 ATP

18. The main limiting factor which limits the rate of photosynthesis on a clear day is
   a. Light
   b. Chlorophyll
   c. Carbon dioxide
   d. All of these

19. Most suitable temperature for vernalization in plants ranges from
   a. 1-6 ^{0}C
   b. 1-10 ^{0}C
   c. 7-9 ^{0}C
   d. 5-8 ^{0}C

20. Which of the following plant is the best example of LDP
   a. Rice
   b. Wheat
   c. Soybean
   d. Chrysanthemum

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