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M.Sc. (Second Semester)
EXAMINATION, May-June, 2022
BOTANY
Paper Fourth
(Plant Metabolism)

*Time : Three Hours]**[Maximum Marks: 80***Note- All sections as directed.**

Section - A
(Objective/Multiple Type Questions)

(1 mark each)**Note: Attempt all questions.**1. First-stable product of dark reaction in C_3 plants

- (A) RUBP
- (B) PEP
- (C) PGA
- (D) O.A.A.

2. Photosynthesis is a process in which

- (A) NADH is reduced to NAD
- (B) ATP is generated
- (C) CO_2 is reduced to carbohydrate
- (D) None of the above

3. Photorespiration occurs in

- (A) Algae
- (B) C_3 plants
- (C) C_4 plants
- (D) All the above

4. Non cyclic photophosphorylation involving

- (A) Pigment System I
- (B) Pigment System II
- (C) Pigment System I and II
- (D) None of the above

5. Which organelle involve in photorespiration

- (A) Lysosomes
- (B) Glyoxisomes
- (C) Peroxisome
- (D) Mesosome

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6. Photophosphorylation means

- (A) Formation of ADD
- (B) Formation of NADP
- (C) Formation of ADP & NADP
- (D) Formation of ATP

7. Lipoprotein found in

- (A) Lytoplasm
- (B) Chloroplast
- (C) Ribosomes
- (D) Cell membranes

8. Photolysis of lipid produced

- (A) Acetone
- (B) Acetic acid
- (C) Phosphate
- (D) Fatty acid

9. R.Q. of organic acid is

- (A) One
- (B) More than 1
- (C) Less than 1
- (D) None of the above

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10. Glycolysis operates in

- (A) Endoplasmic reticulum
- (B) Peroxisome
- (C) Cytoplasm
- (D) Golgi body

11. Which one is the alternative pathway of glycolysis

- (A) Kerb cycle
- (B) Pentos phosphate pathway
- (C) Calvin cycle
- (D) E.T.S.

12. Cytochrome in plant-cells function mainly as

- (A) Oxygen acceptor
- (B) Electron acceptor
- (C) Co₂ acceptor
- (D) None of above

13. How many ATP is during aerobic respiration is

- (A) 40 ATP
- (B) 38 ATP
- (C) 34 ATP
- (D) 10 ATP

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14. Both respiration & photosynthesis require

- (A) Sunlight
- (B) Chloroplast
- (C) Cytochrome
- (D) Phytochrome

15. Which of the following are essential for ATP synthesis

- (A) N and P
- (B) Fe and P
- (C) Mg and Mn
- (D) None of above

16. Which is the connecting link between Glycolysis and kerb cycle.

- (A) Oxaloacetic acid
- (B) Acetyl-COA
- (C) Pyruvic acid
- (D) Cytochrome

17. Glyoxylate cycle was discovered by

- (A) Hans A. Kerbs
- (B) Korenberg and Kerbs
- (C) Harden and Youngs
- (D) None of the above

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P.T.O.

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18. The chemical nature of cytokinin is

- (A) 6- Furtury/ amino purine
- (B) I.A.A.
- (C) I.B.A.
- (D) None of the above

19. Which hormone involve in phototropism

- (A) Auxin
- (B) Gibberellin
- (C) Cytokinic
- (D) Ethylene

20. The role of root hair is

- (A) Water uptake
- (B) Co₂ uptake
- (C) Oxygen uptake
- (D) None of the above

Section - B

(Very Short Answer Type Questions)

(2 marks each)

Note : Attempt all questions.

1. What is the R.Q. of fatty acid.
2. Write two name of C₄ plants.

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3. Define photophosphorylation.
4. Write chemical structure of Glycerol
5. What is action spectra?
6. Define parthenocarpy.
7. What is hormone receptor?
8. Define bolting.

Section - C

(Short Answer Type Questions)

(4 marks each)

Note : Attempt *any six* questions.

1. Name the organelles which involve in photorespiration.
2. Write note on cryptochrome.
3. Why respiration called cell cellular respiration?
4. Give the sailent features of kranz anatomy.
5. Discuss structure of phospholipid.
6. Define types of biological rythum.
7. Define growth inhibitor with example.

Section - D

(Long Answer Type Questions)

(5 marks each)

1. Describe C₄ cycle & its significance.

OR

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Describe Biosynthesis of starch.

2. Describe the kerb cycle in plants.

OR

Explain the biosynthesis of fatty acid.

3. Describe nodule formation in plants.

OR

Discuss Ammonium assimilation in plants.

4. What is Vernalisation? Describe the mechanism of Vernalisation.

OR

Describe physiological effect of Auxin and its importance.