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K – 4923

Reg. No. :

Name :

Third Semester M.Sc. Degree Examination, February 2021

Botany

BO 232 : BIOCHEMISTRY, PLANT PHYSIOLOGY AND RESEARCH
METHODOLOGY

(2019 Admission)

Time : 3 Hours

Max. Marks : 75

SECTION – A

I. Answer the following questions :

1. What are the major activities of INFLIBNET?
2. What is pKa?
3. What is photoperiodism?
4. What constitutes the photosynthetic apparatus?
5. What is peptide bond?
6. Explain the non competitive inhibition of enzyme action.
7. What are coenzymes?
8. Give the names of two hexoses.
9. What are Quantasomes?
10. Which are the photosynthetic pigments found in higher plants?

(10 × 1 = 10 Marks)

P.T.O.



SECTION – B

II. Answer the following questions in not more than **50** words.

11. (a) Describe the steps preceding the formulation of a hypothesis.

OR

(b) Comment on the need of literature review throughout the course of a research work.

12. (a) What is Hill reaction? Explain its significance.

OR

(b) Differentiate between photophosphorylation and oxidative phosphorylation.

13. (a) Explain the generalized structure of an amino acid.

OR

(b) What is activation energy? How does enzyme reactions overcome this energy barrier?

14. (a) What are CAM plants?

OR

(b) Explain what circadian rhythm is?

15. (a) What are the unique features of allosteric enzymes when compared to other enzymes?

OR

(b) What is transamination? Describe the transamination reactions involved in the synthesis of non essential amino acids.

(5 × 2 = 10 Marks)



SECTION – C

III. Answer the following questions in not more than **150** words.

16. (a) Compare and contrast PSI with PSII.

OR

(b) “Most of the food we eat are broken down into smaller molecules in the three stages of aerobic cellular respiration.” Which are the three phases and what happens in each phase?

17. (a) “An appropriate design is required for the success of an experiment, and different designs are devised depending on the nature of study, number of variables, and the type of data to be collected.” Justify the statement.

OR

(b) Write a brief account on the process of biological Nitrogen fixation.

18. (a) Explain the different methods of regulation of enzyme activity, giving suitable examples.

OR

(b) What are buffers? Explain buffer action with the help of a suitable example.

19. (a) What is Ramachandran plot? How is it constructed? What is its use?

OR

(b) Describe briefly, the de novo pathway for the synthesis of nucleotides.

20. (a) What is Michaelis-Menten equation? What is its application?

OR

(b) Describe and compare the structure of starch and cellulose, drawing suitable sketches.



21. (a) Explain anaerobic respiration.

OR

(b) What is senescence? What physiological changes occur during senescence?

22. (a) Describe the steps involved and the importance of β oxidation of fatty acids.

OR

(b) What is gluconeogenesis? Explain.

(7 × 5 = 35 Marks)

SECTION – D

IV. Answer the following questions in not more than **250** words :

23. (a) Elaborate the different components in a thesis and discuss various aspects of the preparation of each.

OR

(b) Explain the classification and naming of enzymes according to IUB system.

24. (a) Write an essay on the physiological effects of different plant growth regulators.

OR

(b) Compare and contrast between C3 and C4 plants.

(2 × 10 = 20 Marks)

