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**M – 7159**

**Reg. No. : .....**

**Name : .....**

**Third Semester M.Sc. Degree Examination, March 2022**

**Botany**

**BO 232 –BIOPHYSICS, BIOCHEMISTRY AND PLANT PHYSIOLOGY**

**(2013 - 2018 Admission)**

Time : 3 Hours

Max. Marks : 75

I. Answer the following questions.

1. Name two column matrix used for gel filtration chromatography
2. What is scintillation cocktail?
3. How phase variation is achieved in phase contrast microscopy?
4. Name a membrane bound enzyme in TCA cycle.
5. Give two prominent enzymes in sucrose synthesis process.
6. Name a prominent enzyme in gluconeogenesis.
7. Give the role of quinone cycle in thylakoid electron transport.
8. How Rubisco activation is achieved?
9. What are osmosolutes?
10. What is meant by photo inhibition?

**(10 × 1 = 10 Marks)**

P.T.O.



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

11. (a) Explain positive and negative staining in electron microscopy.

Or

(b) What are the application of X ray diffraction?

12. (a) Give a short account on isozymes?

Or

(b) Give an account of catabolism of pyrimidine nucleotides.

13. (a) Give a short account on diacylglycerol synthesis.

Or

(b) What are the ways in which photorespiration is reduced in C4 plants?

14. (a) Explain the action of GA in effecting successful seed germination.

Or

(b) What are the means by which photo inhibition is averted in plants?

15. (a) What are the major changes associated with hydration phase of seed germination?

Or

(b) Give a note on various biochemical changes associated with leaf abscission.

**(5 × 2 = 10 Marks)**

III. Answer the following question in not more than 150 words.

16. (a) Give an account of bonding in organic molecules.

Or

(b) Give short notes on biophysical techniques utilised for identifying cells based on colour variation.



17. (a) What is LCMS? Explain the principle behind its working and mention its uses.

Or

- (b) Explain radiation dosimetry and its significance in mutations.

18. (a) Describe lipid oxidation and its various consequences.

Or

- (b) Explain Isozyme. How isozymes are distinguished?

19. (a) Explain the classification of amino acids based on structure.

Or

- (b) Give a detailed note on functional classification of membrane bound enzymes.

20. (a) Give an account on structure and function of Rubisco.

Or

- (b) Elaborate on phenyl propanoid pathway and its significance in stress tolerance of plants.

21. (a) Explain allelopathic action of certain plants and various compounds responsible for the same.

Or

- (b) How do auxins influence phototropism?



22. (a) What are the different strategies adopted by plants for tolerating heat stress?

Or

- (b) Explain the various physiological and biochemical changes associated with the ripening of mango. **(7 × 5 = 35 Marks)**

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

23. (a) Give a detailed account on various techniques adopted for achieving cent percent purification of enzymes.

Or

- (b) Elaborate on various biophysical methods used for analysis of biopolymers.

24. (a) Elaborate the structure of phytochromes and its control over various physiological functions of plants.

Or

- (b) What are the various physiological means by which plants show tolerance towards drought, cold, and salinity stress?

**(2 × 10 = 20 Marks)**

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