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Reg. No. : .....

Name : .....

Third Semester M.Sc. Degree Examination, February 2021.

Botany

BO 232 : BIOPHYSICS, BIOCHEMISTRY AND PLANT PHYSIOLOGY

(2013 - 2018 Admission)

Time : 3 Hours

Max. Marks : 75

Illustrate your answer wherever necessary.

I. Answer **the** following questions.

1. How "Cocktail" is prepared for use in scintillation counter?
2. What is the principle of TEM?
3. What is the necessity of phase plate in phase contrast microscope?
4. Name two osmosolutes.
5. Give the significances of Glucosinolates.
6. Give a single sentence definition for matric potential.
7. Name an inhibitor of thylakoid electron transport.
8. Briefly describe the structure of Rubisco.
9. What are zymograms?
10. How mitochondrial activity varies during the ripening stages of fruits?

(10 × 1 = 10 Marks)

P.T.O.



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

11. (a) Explain the importance of FISH.

OR

(b) What are the applications of Phase contrast microscope?

12. (a) Give a short account on multifunction of Pyruvate dehydrogenase.

OR

(b) Give the two steps at which substrate level phosphorylation takes place in glycolysis.

13. (a) Give a short account on significance of gluconeogenesis.

OR

(b) What is the significance of cyanide resistant respiration in plants?

14. (a) What is the physiology behind the quick emergence of sun loving plants from shade?

OR

(b) Give an account on toxic oxygen species in plants.

15. (a) Describe Munch hypothesis.

OR

(b) What is the role of osmosolutes in equipping the plants to counter stress?

**(5 × 2 = 10 Marks)**



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

16. (a) Explain the procedure of electro focusing.

OR

(b) Give short notes on enzyme localization by electrophoresis.

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

OR

(b) Differentiate between gel filtration and affinity chromatography.

18. (a) Give an account of denovo synthesis of purine nucleotides.

OR

(b) Give an account on classification of lipids.

19. (a) Which are the different polypeptide separation methods adopted?

OR

(b) Differentiate between the working of scanning and transmission electron microscopy.

20. (a) Give an account on mobilization of stored reserves in seeds during germination.

OR

(b) Give an account on types of phytochrome responses based on their sensitivities to fluence.

21. (a) Explain the mode of action of auxins in regulating hypocotyl elongation.

OR

(b) How do auxins influence geotropism?



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

OR

- (b) How phytoalexins play active role in plant defense mechanism?

**(7 × 5 = 35 Marks)**

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

23. (a) Explain TCA as an anabolic and catabolic pathway. Also mention its anapleurotic reactions.

OR

- (b) Give an account of various biophysical methods for structural elucidation of biomolecules.

24. (a) Explain the various adaptations of plants towards various abiotic stresses.

OR

- (b) Explain various regulatory mechanisms operational in photosynthesis and respiratory activities.

**(2 × 10 = 20 Marks)**

