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M – 7157

Reg. No. :

Name :

Third Semester M.Sc. Degree Examination, March 2022

Botany

**BO 233 : MOLECULAR BIOLOGY, IMMUNOLOGY AND PLANT
BIOTECHNOLOGY**

(2019 Admission onwards)

Time : 3 Hours

Max. Marks : 75

I. Answer the following questions.

1. What are ribozymes?
2. What is DNA Gyrase?
3. Explain DNA cloning.
4. What are chaperones?
5. What are the cells involved in innate immunity?
6. What is RIA?
7. Define antigen processing.
8. What is gametoclonal variation?
9. Define dihaploids.
10. What is cell-immobilization?

(10 × 1 = 10 Marks)

P.T.O.



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

11. (a) Give an account of inverse PCR.

OR

(b) Write notes on pBR322.

12. (a) Explain Dot blot.

OR

(b) Describe RARD.

13. (a) Differentiate between immunogenicity and antigenicity.

OR

(b) Explain cell-mediated immunity.

14. (a) What are edible vaccines?

OR

(b) Write about the scope of biotechnology.

15. (a) What are artificial seeds?

OR

(b) Write notes on GMF.

(5 × 2 = 10 Marks)



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

16. (a) Give an account of DNA topology.

OR

(b) Explain Next Generation Sequencing.

17. (a) Write notes on gene knock-out in prokaryotes and eukaryotes.

OR

(b) Describe CRISPR/CAS system in detail.

18. (a) Differentiate between Southern and Western blotting.

OR

(b) Write notes on selection of cloned sequences.

19. (a) Describe ELISA test in detail.

OR

(b) What are congenital and acquired immune deficiencies?

20. (a) Give an account of generation of antibody molecules.

OR

(b) Describe B and T cell receptors.

21. (a) Give an account of meristem culture.

OR

(b) Write about somaclonal variations and its applications.

22. (a) Explain bioreactor technology.

OR

(b) Explain the role of transposons as vectors in gene transfer.

(7 × 5 = 35 Marks)



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

23. (a) Give an account of various cloning vectors used in biotechnology.

OR

(b) Explain the immune responses during tuberculosis and HIV infections.

24. (a) Explain various methods of gene transfer in plants.

OR

(b) Give an account of plant tissue culture and its applications.

(2 × 10 = 20 Marks)

