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S – 7636

Reg. No. :

Name :

Third Semester M.Sc. Degree Examination, February 2024

Botany

BO 231 : CYTOLOGY, CYTOGENETICS AND GENETICS

(2001–2002 Admission)

Time : 3 Hours

Max. Marks : 75

Illustrate your answer wherever necessary.

- I. Answer the following questions.
1. Define Cristae.
2. Which are the purine bases?
3. What is meant by DNA methylation?
4. What is meant by Crossing-over?
5. Define law of dominance.
6. Give an example for delayed dominance.
7. What are multiple alleles? Give an example.
8. Comment on C-value paradox.
9. Write about Okasaki fragments.
10. What is meant by AFLP?

(10 × 1 = 10 Marks)

P.T.O.



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

11. (a) Write notes on structure of Chloroplast.

OR

(b) Comment on the structure of nuclear-pore complex.

12. (a) Describe the structure of Polytene chromosomes.

OR

(b) What is Satellite-DNA?

13. (a) Describe Hardy-Weinberg equilibrium.

OR

(b) Comment on retinoblastoma in man?

14. (a) Write notes on Polygenic inheritance.

OR

(b) Differentiate between Coupling and Repulsion.

15. (a) Describe Oncogenes.

OR

(b) Mention any two applications of Genetic engineering.

(5 × 2 = 10 Marks)

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

16. (a) Describe the structure of nucleus of a typical eukaryote.

OR

(b) Write notes on nucleosomes.

17. (a) Describe the structure and function of Kinetochore.

OR

(b) Comment on ultra-structure of Nucleolus.



18. (a) Give an account of types of inversions in chromosomes.

OR

(b) Describe various stages of mitosis.

19. (a) Explain penetrance and expressivity.

OR

(b) Explain Co-dominance with an example.

20. (a) Describe the inheritance of Haemophilia in human.

OR

(b) Give an account of various proofs for Chromosome theory of heredity.

21. (a) Write notes on gene therapy.

OR

(b) Explain the lysogenic cycle of Viruses.

22. (a) Explain various types of DNA repair mechanisms.

OR

(b) Write notes on semi-conservative mode of DNA replication.

(7 × 5 = 35 Marks)

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

23. (a) Describe the numerical variations of Chromosomes in detail.

OR

(b) Write an essay on extra chromosomal inheritance.

24. (a) Explain various types mutations and the factors causing it.

OR

(b) Describe the mechanism of protein synthesis in eukaryotes in detail.

(2 × 10 = 20 Marks)

