



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY

FIFTH SEMESTER – APRIL 2023

16/17/18UPB5MC02 – GENETICS AND PLANT BREEDING

Date: 03-05-2023

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

PART – A

(10 x 2 = 20 Marks)

Answer the following, each within 50 words.

1. Define alleles.
2. What is pleiotropism?
3. What are Multiple alleles?
4. What are polygenes?
5. Distinguish between nucleoside and nucleotide.
6. Define cistron.
7. What are mutagens?
8. What are transposable elements?
9. Mention the objectives of plant breeding.
10. Define heterosis.

PART – B

(5 x 7 = 35 Marks)

Answer the following, each within 500 words; Draw diagrams and flowcharts wherever necessary

11. (a) Compare and contrast incomplete dominance and codominance.

OR

- (b) Explain the Law of segregation with an example.

12. (a) Give a brief account on polygenic inheritance.

OR

- (b) Explain sex linked inheritance with an example?

13. (a) Describe the structure of the Watson and Crick model of DNA.

OR

- (b) Give an account on the DNA replication in prokaryotes.

14. (a) Write an account on excision and recombination repair mechanisms.

OR

- (b) Enlist the characteristics of Down's syndrome individuals.

15. (a) Write a note on centres of origin of cultivated plants.

OR

- (b) Give a brief account on polyploidy and its role in plant breeding.

PART – C

(3 x 15 = 45 Marks)

Answer **any three** of the following, each within 1200 words. Draw diagrams and flowcharts wherever necessary

16. Explain the law of Independent assortment with an example.
17. Write a detailed account on any two non- allelic gene interaction you have studied.
18. Describe the structure and functioning of *lac* operon.
19. Write an essay on different types of chromosomal aberrations.
20. Write a detailed account on hybridization in plants.

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