

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**



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

**FIFTH SEMESTER – APRIL 2022**

**UPB 5502/16/17/18UPB5MC02 – GENETICS AND PLANT BREEDING**

Date: 16-06-2022

Dept. No.

Max. : 100 Marks

Time: 09:00-12:00

**PART A**

(10 × 2 = 20 Marks)

*Answer the following, each within 50 words.*

01. What is test cross?
02. What are lethal genes?
03. What is tetrad analysis?
04. What is complementary gene interaction?
05. Distinguish between A and Z DNA
06. Define cistron.
07. What is photo reactivation?
08. What are transposable elements?
09. Define hybrid vigour.
10. What is domestication?

**PART B**

(5 × 7 = 35 Marks)

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

11. a. With an example briefly explain the law of segregation.  
OR  
b. Explain incomplete dominance with suitable example.
12. a. Describe supplementary gene interaction with an example.  
OR  
b. Give a brief account on types of crossing over.
13. a. Describe the double helical structure of DNA.  
OR  
b. Write the characteristic features of Genetic code.
14. a. Give an account of various types of mutations.  
OR  
b. Describe excision and post replication recombination repair mechanisms.
15. a. Briefly write about types and importance of polyploidy in plant breeding.  
OR  
b. Describe the various steps involved in mass selection. Add a note on its advantages and disadvantages.

**PART C**

(3 × 15 = 45 Marks)

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

16. Narrate Dihybrid cross with suitable example.
17. Describe sex linked inheritance using colour blindness and haemophilia as examples.
18. Elaborate on the structure and functioning of *lac* operon.
19. Write detailed notes on chromosomal aberrations.
20. Explain in detail on hybridization of plants.

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