

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



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

FIFTH SEMESTER – NOVEMBER 2022

UPB 5502 – GENETICS AND PLANT BREEDING

Date: 25-11-2022

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

PART- A

Answer the following, each answer within 50 words only.

(10×2=20Marks)

1. What is Pleiotropism?
2. State the Mendel Law of Segregation.
3. How is Chiasma formation significant?
4. Justify the ratio 12:3:1
5. Define a Recon.
6. Illustrate Positively supercoiled DNA.
7. Relate Jumping genes to mutation.
8. Interpret the term Eugenics.
9. Relate Emasculation to plant breeding.
10. Explain the term Hybrid vigour.

PART- B

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

(5×7=35 Marks)

11. (a) Explain the concept of incomplete dominance in plants with the help of a checker board.

OR

- (b) Enumerate the seven characteristics features of Pea plant used in Mendelism.

12. (a) What are multiple alleles? Support it with an example.

OR

- (b) Justify the ratio 9:7 (Non Mendelian Ratio) with the help of a Punnett square.

13. (a) Relate the concept of Central Dogma of Life (Transcription and Translation).

OR

- (b) Illustrate and explain the replication of DNA in *E.coli*.

14. (a) Discuss SOS repair of DNA.

OR

- (b) Differentiate between Transition and Transversion mutations.

15. (a) Describe the various hybridization methods for crop improvement.

OR

- (b) Restate the importance of plant breeding.

PART- C

**Answer any three of the following, each within 1200 words; Draw diagrams and flowcharts
Wherever necessary. (3×15=45Marks)**

16. Who is called as the Father of Genetics? Explain the dihybrid cross with an example.
17. Explain the sex linked inheritance in man with respect to colour blindness and hemophilia.
18. What is gene expression? Explain the structure of Lac Operon.
19. Write notes on types of structural chromosomal aberrations.
20. Assess the three methods of plant selection and add a note on its importance.

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