LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIFTH SEMESTER – **APRIL 2016**

PB 5522 – GENETICS & PLANT BREEDING

Date: 29-04-2016 Dept. No. Max. : 100 Marks

Time: 09:00-12:00

PART-A

ANSWER THE FOLLOWING, EACH WITHIN 50 WORDS ONLY. (10x2=20)

1. What is a gene?
2. What is a back cross?
3. What is criss cross inheritance?
4. What is a linkage map?
5. What is a phosphodiester bond?
6. Define recon.
7. What are carcinogens?
8. What is thymine dimer?
9. What is hybridization?
10. Define heterosis.

PART-B

ANSWER THE FOLLOWING, EACH ANSWER WITHIN 500 WORDS, DRAW DIAGRAMS WHEREVER NECESSARY . (5x7=35)

11 a. Compare and contrast incomplete dominance and codominance.

(OR)

b. What are lethal genes? Explain with a suitable example.

12. a. With the help of a Punnet square explain gene interaction in epistatic genes.

(OR)

b. Citing 2 examples explain X linked inheritance.

13 a. Briefly describe the supercoiling of DNA.

(OR)

b. What are the steps involved in the post transcriptional modification of mRNA?

14 a. Explain any 2 types of light independent DNA repair mechanisms.

(OR)

b. What is chromosomal aberration? Describe the different types of structural chromosomal aberrations?

15. a. What is genetic erosion? What are the methods to prevent genetic erosion?

(OR)

b. What is pure line selection ? Discuss its importance ?

PART-C

ANSWER ANY **THREE** OF THE FOLLOWING, EACH ANSWER WITHIN 1200 WORDS, DRAW DIAGRAMS WHEREVER NECESSARY. (3x15=45)

16. In detail explain the 3 Mendelian laws of inheritance.
17. With a suitable example explain sex determination in plants.
18. Enumerate the steps involved in translation of mRNA into protein.
19. Write an essay on transposable elements. Add a note on its biological significance.
20. Discuss the different types of hybridization techniques and their importance in plant breeding.

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