LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIFTH SEMESTER – **APRIL 2016**

PB 5516/5510/5506 – GENETICS, PLANT BREEDING AND EVOLUTION

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

Time: 09:00-12:00

PART – A

ANSWER THE FOLLOWING, EACH WITHIN 50 WORDS ONLY: **(10×2= 20 marks)**

1. What are lethal genes?
2. Distinguish between homozygous & heterozygous organisms.
3. Define a codon.
4. Write the role of Helicase
5. What are Histones?
6. Write note on DNA proof reading.
7. What is Emasculation?
8. What is Autopolyploidy?
9. Define speciation.
10. Define gene pool.

PART – B

ANSWER THE FOLLOWING, EACH ANSWER WITHIN 500 WORDS,
DRAW DIAGRAMS WHEREVER NECESSARY **(5×7= 35 marks)**

11. a) Define and explain the law of independent assortment with example.

(OR)

b) What are multiple alleles? Explain with example.

12. a) Describe the transcription process in prokaryotes.

(OR)

b) Explain the semi-conservative model of replication.

13. a) Brief about chromosomal aberrations.

(OR)

b) What are mutagens and describe its type with examples.

14. a) Explain pure line selection in plant breeding.

(OR)

b) Give an account of heterosis.

15. a) Explain Lamarck's theory of organic evolution.

(OR)

b) Explain Neo-Darwinism theory of organic evolution.

PART – C

ANSWER ANY **THREE** OF THE FOLLOWING, EACH ANSWER WITHIN 1200 WORDS, DRAW DIAGRAMS WHEREVER NECESSARY **(3×15= 45 marks)**

16. With any two example describe the modified dihybrid cross.
17. Define transposable elements and describe its inheritance with an example.
18. Write notes on Down syndrome and Klinefelter's syndrome.
19. Explain the steps involved in hybridization technique.
20. Give an account on speciation and isolation mechanisms.

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