LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIFTH SEMESTER – **APRIL 2018**

PB 5516– GENETICS, PLANT BREEDING AND EVOLUTION

Date: 30-04-2018 Dept. No. Max. : 100 Marks

Time: 09:00-12:00

PART A

Answer the following, each within 50 words: **(10×2= 20marks)**

1. Define test cross.
2. What are lethal genes?
3. Define transposons.
4. Define Okazaki fragments.
5. Define mutation.
6. What are thymine dimers?
7. What is emasculation?
8. Define hybrid.
9. What is speciation?
10. Define gene pool.

PART B

Answer the following, each within 500 words. Draw diagrams and flowcharts wherever necessary: **(5×7= 35marks)**

11. a) Explain the law of segregation and independent assortment.

(OR)

b) Define incomplete dominance and explain with an example.

12. a) What is genetic code? Add a note on its properties.

(OR)

b) Briefly describe the structure of DNA.

13. a) Briefly explain polyploidy.

(OR)

b) Explain excision repair mechanism.

14. a) Explain mass selection in plant breeding.

(OR)

b) Write notes on the principles and objectives of plant breeding.

15. a) Explain the theory of organic evolution.

(OR)

b) Comment on Darwin's theory of natural selection.

PART C

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

16. What are multiple alleles and describe its inheritance pattern?

17. Explain the post transcriptional and translational modifications.

18. Discuss in detail about Down syndrome and Klinefelter syndrome.

19. Explain the steps involved in hybridization techniques.

20. Describe the concept of speciation and isolation according to mutation theory.

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