

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

**B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY & PLANT BIO-TECH.**

FIFTH SEMESTER – NOVEMBER 2007

**PB 5506 - GENETICS AND PLANT BREEDING**

AE 14

Date : 01/11/2007  
Time : 9:00 - 12:00

Dept. No.

Max. : 100 Marks

**PART – A**

**(20 marks)**

**ANSWER ALL QUESTIONS**

**I. CHOOSE THE CORRECT ANSWER:** (5 x 1 = 5 marks)

- The group of nucleotides that specifies one amino acid is a  
a) Codon      b) Muton      c) Cistron      d) Recon
- This is called a starting (or) Chain initiation codon.  
a) AUG      b) UUU      c) GAC      d) UUC
- The chemical study of DNA was made by this scientist who showed that Purine & Pyrimidines are in equal proportions.  
a) Avery      b) Fischer      c) Chargoff      d) Robert
- Skin colour in Man is due to  
a) Complementary genes      b) Isoalleles      c) Cytoplasmic inheritance  
d) Quantitative inheritance.
- Which one of the following offspring will be homozygous nature  
a) Mass selection      b) Pureline selection      c) Clonal selection  
d) Hybridization.

**II. STATE WHETHER THE FOLLOWING STATEMENTS ARE TRUE OR FALSE:** (5 x 1 = 5)

- Down's syndrome is due to Trisomy of 17<sup>th</sup> chromosome.
- Insertion or deletion of a group of nucleotide, that changes, the frame in which the altered gene is translated, is known as Frame shift.
- During DNA replication both strands replicate by addition of nucleotide monomers in the 5' to 3' direction.
- DNA synthesizes RNA.
- Heterosis is nothing but hybrid vigour.

**III. COMPLETE THE FOLLOWING:** (5 x 5 = 5)

- In a cell cycle DNA replication occurs only during \_\_\_\_\_ phase.
- Inheritance of Acquired characters was proposed by \_\_\_\_\_.
- Repair of DNA lesions by removal of the damaged segment and replacement with a newly synthesized corrected segments, is called \_\_\_\_\_.
- DNA replication in prokaryotic cells is catalyzed by \_\_\_\_\_ enzymes.
- Raphano brassica is an example for \_\_\_\_\_ ploidy.

IV. ANSWER ALL EACH IN ABOUT 50 WORDS.

(5 x 5 = 5)

16. What is Re annealing (Re naturation)?
17. Define Termination codons?
18. Define Genetic recombination?
19. What is Bagging?
20. What is center for origin?

**PART – B**

**(5 x 8 = 40 marks)**

ANSWER ANY 5, EACH IN WITHIN 350 WORDS ONLY. DRAW DIAGRAMS AND FLOWCHARTS WHEREVER NECESSARY:

21. Explain cytoplasmic inheritance with one example.
22. Write notes on           A) Sexdetermination in plants  
                                  B) Lethel genes.
23. Describe klinefelters syndrome.
24. Write down the objectives of plant Breeding.
25. Write short notes on Darwinism & Neo Darwinism.
26. Explain Pureline selection.
27. What is polyploidy and what are the types.
28. Write notes on Mutagens.

**PART – C**

**(4 x 10 = 40 marks)**

ANSWER THE FOLLOWING EACH WITHIN 1500 WORDS. DRAW DIAGRAMS AND FLOWCHARTS WHEREVER NECESSARY.

29. Write an Essay on chromosomal aberrations.

(or)

What is Mutations and what are the types that bring about Mutation.

30. Write about Hybrization technique in detail?

(or)

- |                |                          |      |
|----------------|--------------------------|------|
| Write notes on | A) Multiple Alleles.     | (10) |
|                | B) Co dominance          | (5)  |
|                | C) Transposable Elements | (5)  |

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