STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2004-05 & thereafter)

SUBJECT CODE: BT/MC/GN54

B. Sc. DEGREE EXAMINATION, NOVEMBER 2008
BRANCH V (a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY
FIFTH SEMESTER

COURSE : MAJOR – CORE
PAPER : GENETICS
TIME : 3 HOURS MAX.MARKS:100

SECTION – A

ANSWER ALL QUESTIONS (18 marks)

I. CHOOSE THE CORRECT ANSWER:

1. Back cross is the cross of F_1 hybrid with a
   a) dominant parent b) recessive parent c) any one of the parent
   d) hybrid parent
2. When two or more genes have the same effect on a given trait they are referred to as
   a) supplementary gene b) complementary gene c) duplicate gene
   d) epistatic gene.
3. The number of chromosome in *Melandrium album* female plant is
   a) 22 autosomes plus X chromosome
   b) 22 autosomes plus 2X chromosomes
   c) 23 autosomes plus 1X and 1Y chromosome
   d) 23 autosomes plus 2X chromosomes
4. In Drosophila crossing over takes place in the male
   a) rarely b) frequently c) rarely or frequently d) all the three
5. MN blood group system is described by
   a) Landsteiner and P. Levine b) Landsteiner and Wiener
   c) Landsteiner and Shull d) Landsteiner and Castle
6. The most important chemical mutagen is
   a) alcohol b) peroxides c) caffeine d) permanganate

STATE WHETHER TRUE OR FALSE:

7. In man the Y chromosome is larger than X.
8. The transmission of characters controlled by plasmagenes is called cytoplasmic inheritance.
9. The theory of linkage was propounded by T.H. Muller.
10. The normal eye colour of Drosophila is white.
11. Gene that inhibits or masks the expression of another gene is called hypostatic.
12. Aneuploids are individuals with an uneven number of individual chromosomes.

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MATCH THE FOLLOWING

13.	Interaction of gene	-	Henking
14.	Red blood corpuscle	-	Transition
15.	Chromosomal aberrations	-	Basteson and Punnet
16.	Ethyl Methane sulphonate	-	Muller
17.	Transgressive Variation	-	Punnet
18.	X chromosome	-	Antigens

ANSWER ANY SIX QUESTIONS. EACH ANSWER NOT TO EXCEED 50 WORDS (6 x 3 = 18)

19. Test cross
20. Lethal genes
21. Coupling
22. Transversion
23. Mutagens
24. Mapping of genes
25. Gynandromorphs
26. Klinefelter syndrome
27. Male haploidy.

SECTION – B

ANSWER ANY FOUR QUESTIONS. EACH ANSWER NOT TO EXCEED 200WORDS: (4 x 6 = 24)

28. Give an account of complementary factor.
29. Write briefly about the theories of crossing over.
30. What is phenylketonuria? Explain.
31. Describe CIB method to detect mutation.
32. Discuss Sex linked inheritance in human being.
33. Define Rh factor and discuss their inheritance and significance.

SECTION – C

ANSWER ANY TWO QUESTIONS. EACH ANSWER NOT TO EXCEED 1000WORDS. DRAW DIAGRAMS WHEREVER NECESSARY (2 x 20 = 40)

34. Write an essay on cytoplasmic inheritance.
35. How sex is determined in human being and Melandrium? Add a note on Environmental factors affecting sex determination.
36. Give an account of Genetic conselling and Eugenics.
37. Describe chromosomal aberrations with reference to structural and Numerical Variations.

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