

SUBJECT CODE: ZL/MC/GS54

**B.Sc. DEGREE EXAMINATION NOVEMBER 2011**  
**BRANCH VI A – ADVANCED ZOOLOGY & BIOTECHNOLOGY**  
**FIFTH SEMESTER**

**COURSE : MAJOR CORE**  
**PAPER : GENETICS**  
**TIME : 3 HOURS**

**MAX. MARKS: 100**

**SECTION A**

**ANSWER ALL QUESTIONS**

**(10X3=30)**

**1. Fill in the blanks**

- a. In \_\_\_\_\_ the phenomenon of both dominant and recessive allele lack their dominant and recessive relationships and both have the capacity to express them phenotypically in heterozygous condition.
  - b. Haemophilia is an example for \_\_\_\_\_ inheritance.
  - c. Multiple phenotypic expression of a single gene is called \_\_\_\_\_.
2. Give an example for each of the following:
- a. Polygenic inheritance    b. Variable expressivity    c. Y – Linked inheritance.
3. Differentiate between:
- a. Sex influenced and Sex Limited genes    b. Epistasis and Dominance
4. What is Test cross? Give its significance.
5. Define the following:
- a. Linkage Map    b. Hybrid Vigour
6. What are the following:
- a. Barr body    b. Eugenics    c. Nondisjunction
7. Comment on Oncogenes.
8. Mention the three major classes of developmental genes in *Drosophila*.
9. Give the chromosomal formula for the following syndromes.
- a. Klinefelter syndrome    b. Down Syndrome    c. Jacob Syndrome
10. What are lethal genes? Give an example.

**SECTION B**

**ANSWER ANY FIVE QUESTIONS**

**(5X6=30)**

11. Explain the law of independent assortment with an example.
12. Briefly explain transgressive variation in Chicken.
13. Explain the environmentally controlled sex determination.

14. Describe how crossing over is deduced cytologically in *Drosophila*.
15. What is Ames test? Explain the protocol and its significance.
16. Describe the process of rearrangement in Kappa light chain gene.
17. Explain the types of chromosomal aberrations.

### SECTION-C

**ANSWER TWO QUESTIONS**

**(2X20=40)**

18. Explain in detail the Extra Chromosomal Inheritance.
19. Write an essay on the molecular basis of mutations.
20. What is inborn errors of metabolism? Explain with examples.
21. Define Multiple allelism. Explain the same with reference to blood groups. Add a note on the significance of Rh antigen.

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