

B.Sc. DEGREE EXAMINATION NOVEMBER 2012
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)

- Differentiate between:
 - Codominance and Incomplete dominance
 - Test cross and Back cross
- What is meant by penetrance?
- Fill in the blanks
 - The process of improving human race genetically is called-----.
 - The formation of multivalents at meiosis in a diploid organisms is due to-----.
 - The normal human female cells can be identified by the presence of-----.
- Give an example for each of the following
 - Lethal genes in man
 - Sex limited genes
 - Holandric genes
- Define the following:
 - Transversion
 - Coupling and Repulsion
- Write the characteristic features of the following:
 - Multiple gene inheritance
 - Klinefelters syndrome
- Explain Ames test.
- Explain the following:
 - Male haploidy
 - Maternal effect genes in *Drosophila*
- Define the terms
 - Inbreeding depression
 - Inbreeding coefficient
- Differentiate between Free martinism and Pseudohermaphrodite.

SECTION B

ANSWER ANY FIVE QUESTIONS

(5X6=30)

- Explain law of Independent Assortment with an example.
- How are plastids inherited in *Mirabilis jalapa* ?
- Briefly explain the inheritance of colour blindness in man.
- Explain incomplete linkage in *Drosophila*.
- Discuss the genic balance mechanism of sex determination in *Drosophila*.
- Write a brief account of genetic basis of heterosis.
- Give an account of tumour suppressor genes.

SECTION-C

ANSWER TWO QUESTIONS

(2X20=40)

18. Explain epistatic gene interaction with examples.
19. List the characteristics of multiple alleles and explain the inheritance of blood groups in man.
20. Give an account of the different types of gene mutations.
21. Discuss the diseases caused due to inborn errors in phenylalanine metabolism.
