

2021

B.Sc. (Hons.) Bio-Informatics  
Fifth Semester  
BIN-5004: Genetics and Evolution

Time allowed: 3 Hours

Max. Marks: 60

**NOTE:** Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Answer briefly:-

- a) Chromosomal theory of inheritance
- b) Lethal genes
- c) Principle of Independent assortment
- d) Karyotype
- e) Lamp brush Chromosomes
- f) Pleiotropy
- g) Hardy Weinberg Law
- h) Inversion

(8x1½)

UNIT – I

II. Discuss Mendel's monohybrid, di hybrid and tri hybrid crosses.

(12)

III. a) Explain the phenomenon of penetrance and expressivity.

b) Discuss the significance of essential genes.

(2x6)

IV. a) Elaborate on the Law of segregation.

b) What is the role and significance of dominant and recessive Epistasis?

(2x6)

UNIT – II

V. Write a note on:-

- a) Variations in chromosome structure
- b) Natural selection

(2x6)

VI. a) Define mutation. Explain the Ames test for mutagenic agents.

b) Describe the chromosome banding pattern and its significance

(7,5)

VII. Discuss the packaging of DNA molecules into chromosomes.

(12)

x-x-x