Exam.Code:0035
Sub. Code: 0973

1129
B.Sc. (Hons.) Biotechnology
Third Semester
BIOT-Sem-III-II-T: Genetics

Time allowed: 3 Hours **Max. Marks: 67**

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

x-x-x

I. Attempt the following:-

a) What is Punnet square? (3)

b) What is trihybrid cross? (2)

c) Define linkage? (2)

d) What is point mutation? (2)

e) What is aneuploidy? (2)

f) What is recombination frequency? (2)

g) What is maternal inheritance? (2)

UNIT – I

II. a) Discuss the monohybrid and dihybrid crosses with examples and the laws which govern them?

b) Discuss the chromosomal aberrations in context to Deletion, duplication and translocation? (7,6)

III. a) With the help of experiments on eye color of *Drosophila melanogaster,* how is sex linkage determined?

b) What is numerical chromosomal aberration? Explain aneuploidy and polyploidy with example how do they affect an organism? (7,6)

UNIT – II

IV. a) What do you understand by gene interaction? Explain the Complementary and Epistasis mode of interaction?

b) What is three point test cross and their products? (8,5)

P.T.O.

V. a) How is somatic cell hybridization technique is used for gene linkage studies?

b) Give an account of two hereditary effects and their genetic basis in humans? (8,5)

UNIT – III

VI. a) Discuss the various types of mutations with examples?

b) Give the difference between mutagenicity and carcinogenicity? (8,5)

VII. a) Discuss the importance of Chi-square and its application in genetics?

b) What is the difference between gene and genotypic frequency? (8,5)

UNIT – IV

VIII. a) Discuss conjugation, transduction and transformation in bacteria?

b) Discuss the extra chromosomal inheritance? (8,5)

IX. a) How can you analyze mutations in a biochemical pathway?

b) What is replica plating? Explain with diagram? (8,5)

x-x-x