(i) Printed Pages : 3 Roll No. .....

(ii) Questions : 9 Sub. Code : 1 7 9 7 2

Exam. Code : 0 0 3 5

B.Sc. (Hons.) Biotechnology 3rd Semester

(2124)

GENETICS

Paper : BIOT-302-T

Time Allowed : Three Hours] **[Maximum Marks : 67**

Note :— Attempt **five** questions in all. Q. No. **1** is compulsory. Attempt **one** question from each unit.

1. Short answer type :

   (a) Explain extra chromosomal inheritance.

   (b) Explain with example sex linked inheritance.

   (c) What is somatic cell hybridization ?

   (d) Explain position effect.

   (e) Define phenotypic and genotypic frequency. 3×5=15

UNIT—I

2. (a) Explain Mendel's law of independent assortment with suitable example.

   (b) Explain non-disjunction is a proof of chromosomal theory of inheritance. 7,6

3. Write short notes on the following :

(a) Mitochondrial inheritance.

(b) Sex determination in drosophila.

(c) Incomplete dominance and co-dominance. 5,5,3

UNIT—II

4. (a) Explain with diagram molecular mechanism for crossing over.

(b) Explain three point testcross and its significance. 7,6

5. Write short notes on the following :

(a) Tetrad analysis.

(b) Interference and coincidence. 8,5

UNIT—III

6. (a) Explain different chemical mutagenic agents with example.

(b) Write short note on numerical chromosomal aberrations. 8,5

7. Explain the following :

(a) Correlation between mutagenicity and carcinogenicity.

(b) Deletion as chromosomal aberrations. 8,5

UNIT—IV

8. (a) Explain the generalized and specialized transduction mechanism in bacteria.

   (b) Explain one gene one enzyme hypothesis. 6,7

9. (a) Explain replica plating technique is used for isolation of auxotrophs.

   (b) Explain Chi square test and its application in genetics. 6,7