

(i) Printed Pages : 2

Roll No.

(ii) Questions : 9

Sub. Code :

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Exam. Code :

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

(2122)

GENETICS

Paper : BIOT-302-T

Time Allowed : Three Hours]

[Maximum Marks : 67

Note :— Attempt five questions in all. Question No. 1 is compulsory.

Attempt one question each from Units I, II, III, IV.

1. Short answer type :

- (a) What is sex linked inheritance ?
- (b) What is Chi square test used for ?
- (c) Define linkage. What are linkage maps ?
- (d) What are mutagenic agents ? Give examples.
- (e) Define transduction and transfection. 3×5=15

UNIT-I

2. (a) Describe Mendel's law of independent assortment.

(b) Discuss the mechanism of chloroplast inheritance. 7,6

3. (a) How expression of a gene can be masked using epistasis ? Explain.
- (b) Write short notes on :
- (i) Incomplete dominance
 - (ii) Co-dominance
 - (iii) X-linked disorder. 7,6

UNIT-II

4. (a) Describe the molecular mechanism of Crossing over.
- (b) Discuss gene mapping in detail. 7,6
5. Discuss somatic cell hybridization for gene linkage studies. 13

UNIT-III

6. What are mutations ? Explain various types of mutations. 13
7. (a) Discuss Mis-match mechanism for DNA repair.
- (b) Describe deletion and duplication based chromosomal aberrations.
- (c) Explain position effect. 5,4,4

UNIT-IV

8. (a) Write note on :
- (i) $F^+ \times F^-$ conjugation
 - (ii) $Hfr \times F^-$.
- (b) Discuss in detail Hardy Weinberg equilibrium. 6,7
9. (a) Describe the technique used for isolation of auxotrophs.
- (b) Discuss one-gene one-enzyme hypothesis. 7,6