16/5/23 (Morning)

(i) Printed Pages : 4 Roll No. .....

(ii) Questions : 9 Sub. Code : 0155

Exam. Code : 0002

B.A./B.Sc. (General) 2nd Semester

(2053)

BOTANY

Paper–B Genetics

Time Allowed : Three Hours] [Maximum Marks : 36

Note :—Attempt **five** questions in all, including Question No. **1** which is compulsory and selecting **one** question from each Unit.

1. (A) Choose the correct answer out of the given options :

(i) Which of the following is not the work of *Mendel* ?

(a) Principle of paired factors

(b) Linkage

(c) Independent assortment

(d) Law of segregation

(ii) Monogene controls :

(a) Complete expression of trait

(b) Supression of trait

(c) Partial expression of trait

(d) All of the above

(iii) Chromosome theory of Heredity was proposed by :

(a) *Mendel*

(b) *Sutton and Boveri*

(c) *Bateson and Punnet*

(d) *Morgan*

(iv) Daltonism is commonly known as :

(a) Colour Blindness

(b) Haemophillia

(c) Hypertrichosis

(d) Bleeders disease

(v) Nitrous Acid (Mutant) does not effect :

(a) Adenine

(b) Cytosine

(c) Guanine

(d) Thymine

(vi) Thymine dimers are formed in DNA due to :

(a) Gamma rays

(b) Temperature change

(c) Chemical mutagens

(d) UV radiation $1 \times 6 = 6$

(B) Fill in the blanks :

(i) _____ repair system is absent in Xeroderma pigmentosm.

(ii) Mutation theory of evolution was proposed by _____.

(iii) 1% crossing over between two linked genes is known as _____ in linkage maps.

(iv) Majority of sex linked traits are _____.

(v) F2 ratio of Recessive Epistasis is _____.

(vi) AB blood group shows _____ type of gene interaction. 1×6=6

UNIT—I

2. Explain the following :

(a) Monohybrid cross and Dihybrid crosses of Mendel.

(b) Different principles of Inheritance proposed by Mendel. 3×2=6

3. Define Linkage and its type with an example and its importance. 6

UNIT—II

4. Discuss in detail the following :

(a) Complementary genes

(b) Supplementary genes. 3×2=6

5. Differentiate between Allelic and nonallelic interaction with suitable examples of each type. 6

UNIT—III

6. Explain the following :

   (a) Extra nuclear inheritance with one suitable example.

   (b) Differentiate Cytoplasmic inheritance with Nuclear inheritance.

4+2=6

7. Discuss Sex linked Inheritance with suitable example and its characteristics. 6

UNIT—IV

8. Discuss various types of physical and chemical mutagens. 6

9. Explain in detail DNA damage and Excision repair mechanism in prokaryotes. 6