

(i) Printed Pages: 4]

Roll No. ....

(ii) Questions : 9]

Sub. Code : 

0	1	5	5
---	---	---	---

Exam. Code : 

0	0	0	2
---	---	---	---

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

**1047**

**BOTANY**

**Paper : B Genetics**

**Time : 3 Hours]**

**[Max. Marks : 36**

**Note :-** Attempt *five* questions in all. Question No. 1 is compulsory and select *one* question from each Unit.

1. (a) MCQ :

(i) If both the parents have O blood group the offsprings will have :

- |              |             |
|--------------|-------------|
| (a) A group  | (b) B group |
| (c) AB group | (d) O group |

(ii) Phenotypic ratio of a dihybrid cross is :

- |                   |                   |
|-------------------|-------------------|
| (a) 4 : 4 : 4 : 4 | (b) 7 : 7 : 7 : 1 |
| (c) 9 : 3 : 3 : 1 | (d) 1 : 1 : 1 : 1 |

(iii) A cross between a heterozygous individual and a homozygous recessive parent is called :

- (a) Test cross
- (b) Back cross
- (c) Dihybrid cross
- (d) Monohybrid cross

(iv) Which of the following is not a category of chemical mutagen ?

- (a) Base modifying
- (b) Base analogue
- (c) Intercalating compound
- (d) Ionising radiations.

(v) When two pairs of genes interact to give 9 : 7  $F_2$  ratio they are :

- (a) Supplementary genes
- (b) Complementary genes
- (c) Epistasis
- (d) Duplicating genes



(vi) Allosomes are also called :

- (a) Odd chromosomes
- (b) Sex chromosomes
- (c) Autosome
- (d) None of these

(b) Fill in the blanks :

- (i) Extra nuclear inheritance is controlled by ..... genes.
- (ii) Skin colour in man is an example of ..... inheritance.
- (iii) Nitrous acid does not affect Thymine because it does not contain .....  
:
- (iv) UGA, a stop signal codon refers to .....  
in mitochondria of animals and fungi.
- (v) Eye colour in *Drosophila* is controlled by ..... alleles.
- (vi) ..... is the phenomenon where none of the two Mendelian factors or alleles is dominant over the other.  $12 \times 1 = 12$

### Unit-I

2. Explain Mendel's Law of independent assortment. 6
3. Write notes on :
  - (a) Linkage groups (b) Linkage map 3,3

### Unit-II

4. Write notes on :
  - (a) Pleiotropic genes (b) Codominance 3,3
5. What is Epistasis ? Briefly discuss its types giving one example of each type. 6

### Unit-III

6. Describe Inheritance of leaf variegation of Four O'clock plant. 6
7. Write notes on :
  - (a) Haemophilia
  - (b) Chromosomal theory of inheritance 3,3

### Unit-IV

8. What are Gene mutations ? Give mechanism of gene mutations. 6
9. Write notes on :
  - (a) DNA damage
  - (b) Excision repair mechanism in *E.coli*. 3,3