

BOTANY Paper-B

(Genetics)

Time Allowed : 3 Hours]

[Maximum Marks : 36

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

1. (a) Multiple Choice Questions :

(i) Mutations can be induced by :

- (a) Radiations (b) Temperature
(c) Chemicals (d) All of the above

(ii) The ratio of complementary genes is :

- (a) 9:3:4 (b) 9:3:3:1
(c) 9:7 (d) 15:1

(iii) Tendency of genes to be inherited together is known as :

- (a) Dominance (b) Linkage
(c) Crossing over (d) None of the above

(iv) When a gene hides the effect of other nonallelic gene is called :

- (a) Epistasis (b) Complementary genes
(c) Incomplete dominance (d) Dominance

(v) Phenotypic ratio of a dihybrid cross is :

- (a) 3:1 (b) 12:3:1
(c) 9:3:3:1 (d) 15:1

(vi) An important example of Pleiotropy is :

- (a) Hemophilia (b) Small pox
(c) Sickle cell anaemia (d) Colour Blindness

(b) Fill in the blanks :

- (i) TDF gene is present onChromosome .
(ii) Duplicate genes produce F_2 ratio of.....
(iii) Multistep reactions are controlled by.....genes.
(iv) The genotype for O blood group is.....
(v) A sudden heritable change in a living organism is called.....
(vi) Sex linked recessive disease Hemophilla is also known as.....disease.

12 × 1 = 12

UNIT-I

2. Discuss Mendel's Law of Segregation. Give reasons for Mendel's success. 6
3. Write notes on :
 - (a) Linkage Groups 3
 - (b) Importance of Linkage. 3

UNIT-II

4. What are Supplementary Genes? Explain by giving examples. 6
5. Explain quantitative inheritance of skin colour in human beings. 6

UNIT-III

6. What do you mean by Criss Cross Inheritance? Explain this with reference to colour blindness. 6
7. Describe briefly the Mitochondrial inheritance in yeast. 6

UNIT-IV

8. What are Mutagens? Explain the working of either Physical or Chemical Mutagens. 6
9. Write notes on :
 - (a) DNA Damage 3
 - (b) DNA Repair 3