

2022

BOTANY

[HONOURS]

(CBCS)

(B.Sc. Third Semester End Examinations-2022)

PAPER-C7T

[Genetics]

Full Marks: 40

Time: 02 Hrs

*The figures in the right hand margin indicate marks
Candidates are required to give their answers in their own words as
far as practicable*

Illustrate the answers wherever necessary

Group - A

1. Answer any five of the following:

5x2=10

- a) What is meant by split gene?
- b) What is the chromosomal theory of inheritance?
- c) How does allelic frequency affect genetic variation?
- d) What is polygenic inheritance?
- e) What is genetic drift?
- f) What is homologous recombination?
- g) Define transposon elements
- h) What is chiasma?

(2)

Group – B

2. Answer any four of the following: **4x5=20**
- a) Write a short note on molecular basis of crossing over. Distinguish between interference and coincidence? 3+2
 - b) What is meant by Cis-Trans complementation test? Distinguish between classical and molecular concepts of genes? 2+3
 - c) What is the difference between natural selection and artificial selection? Discuss briefly allopatric speciation with suitable illustrations. 2+3
 - d) What is the principle of independent assortment? Briefly explain multiple allelism with suitable example. 1+4
 - e) What is maternal effect inheritance? Write a short note on mitochondrial mutations in yeast? 2+3
 - f) Discuss briefly the different types of lethal alleles with suitable examples. 5

Group – C

3. Answer any one of the followings: **1x10=10**
- a) Which enzyme is responsible for DNA repair? Discuss the two main mechanism of DNA repair with suitable illustrations? What happens if DNA repair mechanisms fail? Name two alkylating mutagens. 1+(3+3)+1+2

(3)

- b) Discuss briefly the different types of mutation due to alterations in chromosome structure with suitable illustrations. 5+5