

**Zoology [Honours]  
[CBCS]**

**B.Sc. Fifth Semester End Examination-2023**

**(Regular & Supplementary Paper)**

**PAPER-C12T**

**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 questions of the following:      5x2= 10**
  - a. What is linkage? Give an example of complete linkage.
  - b. What is co-dominance? Give an example
  - c. Define lethal alleles with an example.
  - d. Differentiate between sexlimited and sexlinked inheritance.
  - e. What is silent mutation? Give an example.
  - f. What is cistron
  - g. What is tautomerization? Give example.
  - h. Distinguish between Hfr and F<sup>+</sup> cells.

(2)

**Group B**

2. Answer any FOUR questions of the following: 4x5 = 20
- Describe dominant epistasis and recessive epistasis with checker board along with phenotypic ratio.
  - What is transposable element? Write down the methods of transposition.
  - Write down the cause Karyotype and symptoms of Patau and Turner syndrome.
  - Explain Cis-trans complementation test with examples.
  - A boy is red green colour blind, Which is a sex-linked recessive gene on the X chromosome. Whom did he inherit the defective allele from? Explain. Will any of his children inherit this colour blindness if he marries a normal vision girl? Explain with a Punnett square.
  - Does cross-over suppression occur in an inversion homozygote? Explain.
    - What is Ames test?

**Group C**

3. Answer any ONE question of the following: 1x10 = 10
- Drosophila stock carrying the dominant eye mutation star(s) on the second chromosome crossed to homozygous for the second chromosome recessive mutation aristaless(a) dumpy (d). The F<sub>1</sub>

(3)

star female are back crossed to homozygous aristaless dumpy males and following phenotypes were observed-

Sl	Phenotype	No
1	Aristaless, dumpy	918
2	Star	956
3	Aristaless, star	7
4	Dumpy	5
5	Aristaless	132
6	Star, dumpy	100

What are the recombination distance and order of the loci for these three genes ? What classes of phenotypes are missing and why?

- What are merodiploids?
  - Briefly describe generalised transduction with labelled diagram
  - Explain the difference between epistasis and dominance. How many loci are involved in each case? 2+5+(2+1)

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