Total No. of Printed Pages—4

5 SEM TDC ZOOH (CBCS) C 12

2024

(November)

ZOOLOGY

(Core)

Paper : C–12

(Principles in Genetics)

Full Marks : 53

Pass Marks : 21

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Fill in the blanks : 1×5=5

(a) Interrupted mating technique was developed by _____.

(b) In *Drosophila,* sex is not determined by _____ chromosome.

(c) _____ genes will not allow mutant allele of another gene to express either fully or partially.

(d) Hybrid dysgenesis describes the phenomenon which involves damage in _____.

(e) Cytoplasmic male sterility in maize was discovered by _____.

2. Write briefly on any *two* of the following : 3×2=6

(a) Epistasis

(b) Transposons in humans

(c) Types of gene mutation

3. What do you understand by recombination? Discuss various models available to explain molecular mechanism of recombination. 7

Or

How will you prove that crossing-over has a cytological basis? Give a brief account of the procedure used in preparing a crossover map with the help of three-point crosses. 2+5=7

4. Discuss the detailed procedure utilized for detection of sex-linked lethal mutation using CLB method. 7

Or

Discuss different kinds of radiations and chemical mutagens utilized for induction of mutation. 3+4=7

5. Explain the mechanism of sex determination in man or *Drosophila*. 7

Or

Differentiate between (any *two*) : 3½×2=7

(a) Codominance and Incomplete dominance

(b) Linkage and Crossing-over

(c) Sex-limited and Sex-influenced trait

6. What is antibiotic resistance in bacteria? Discuss antibiotic resistance in Chlamydomonas. 1+6=7

Or

Explain the law of independent assortment with suitable cross displaying phenotypic and genotypic ratio. 7

7. What are polygenes or multiple factors? Describe briefly the multiple-factor hypothesis. 7

Or

Describe the role of sex factor in bacterial conjugation with reference to F^+ and Hfr strains.

8. How can transposons be utilized for genetic study? Describe A_c-D_s system in maize. 2+5=7

Or

Define aneuploidy. Discuss any three types of disorders with respect to aneuploidy. 1+6=7

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