



WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 5th Semester Examination, 2021-22

ZOOACOR12T-ZOOLOGY (CC12)

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.*

1. Answer any **eight** questions from the following: 2×8 = 16
- What is interference and coincidence?
 - Differentiate between epistasis and dominance.
 - Define complete and incomplete linkage.
 - What are Heterozygous and Hemizygous allele?
 - What is Haplotype?
 - Differentiate mutagen from carcinogen.
 - Distinguish between frameshift and non-sense mutation.
 - What is dosage compensation? How is it achieved?
 - What is Robertsonian translocation? Give example.
 - What is 'P' elements in drosophila?
 - What do you understand by loss-of-function mutation?
 - Give a note on conjugation.
2. Answer any **three** questions from the following: 3×3 = 9
- What are the two different genetic cause of Trisomy 21? What are the known risk factor for having a child with Down syndrome?
 - Discuss the role of Ac-Ds system as transposable genetic elements.
 - What are spontaneous and induced mutation? What is clastogen?
 - Describe the Holliday model of recombination.
 - Discuss the fine structure of gene as revealed through the work on rII locus in T4 bacteriophage.

3. Answer any **three** questions from the following: 5×3 = 15
- (a) How the sex of mammals is determined? Describe the mechanism. 1+4
- (b) What are the different kinds of polyploids? How will you distinguish between autopolyploids and allopolyploids? 2+3
- (c) Briefly discuss about transformation and transduction in bacteria. 5
- (d) Singed bristles(Sn), Cross-veinless wing (Cv) and Vermilion eye colour (V) are due to recessive mutant alleles in *D. melanogaster*. When a female heterozygous for each of the three genes was test crossed, the following progeny were obtained.

Singed, Cross veinless, Vermilion	→	3
Vermilion	→	34
Cross veinless, Vermilion	→	392
Cross veinless	→	61
Singed, Cross veinless	→	32
Singed, Vermilion	→	65
Singed	→	410
Wild type	→	3

What is the correct order of these three genes? What are the genetic map distances between Sn and Cv, Sn and V and Cv and V? What is coefficient of coincidence?

- (e) Write the difference between sex-linked, sex-influenced and sex-limited inheritance with example. 5

N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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