

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. FIRST SEMESTER EXAMINATION, MARCH 2021

FIRST YEAR [BATCH 2020-23]

ZOOLOGY [HONOURS]

PAPER : II [CC2]

Date : 26/03/2021

Time : 11 am – 1 pm

Full Marks : 50

Answer all the questions :

Group-A

1. a) "In *Drosophila* XXY is a fertile female but in Human XXY is sterile male" – Justify. (2)
b) Why *Sxl* is considered as a master switch in *Drosophila* sex determination process. (3)
2. a) Define linkage and linkage group. (3)
b) Why linkage is considered as an exception of Mendel's second law? (2)
3. a) What is Gynandromorph? (2)
b) Schematically mention the mechanism of inactivation process of X chromosome in *Drosophila*. (3)
4. a) Mention the ultrastructure of Human *SRY* Gene. (2)
b) Mention the importance of PAR region of Y chromosome. (3)

Group-B

5. a) How does incomplete dominance differ from codominance? (3)
b) Explain with an example. (2)
6. a) How a normal allelic variant of a gene can be converted to a lethal allele? (3)
b) What is suppressor mutation? (2)
7. a) What are the assumptions of 'Hardy Weinberg Equilibrium'? (3)
b) What is the significance of having such assumptions in formulation of their law? (2)
8. a) What type of DNA repair mechanism do you suggest in case of a point mutation and why? (2.5)
b) 'Deletion mutation may or may not result into a frameshift mutation' – Justify with reason. (2.5)
9. How mutation can result into change in the allele and genotype frequencies of a population? Explain with an example. (2.5+2.5)
10. Explain the ClB method and its importance. (3+2)

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