RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

FIRST YEAR [2019-22]

B.A./B.Sc. FIRST SEMESTER (July – December) 2019

Mid-Semester Examination, September 2019

Date : 16/09/2019

Time : 1 pm – 2 pm

ZOOLOGY (Honours)

Paper : II[CC 2]

Full Marks : 25

Answer **any five** questions : **[5×5]**

1. What is "Target Hypothesis"? Mention the role of 'base analogs' in mutation with examples. [2.5×2]

2. Discuss about "Position Effect" with a suitable example. Show the mechanism by which 'Down Syndrome' case may be generated. [2+3]

3. Describe the difference in the procedure of paracentric and pericentric inversion. Write down the significance of Philadelphia Chromosome. [3+2]

4. What is Chromocentre? Differentiate between multiple allele and pseudoallele. Define Phenocopy. What is "cry-du-chat syndrome"? [1+2+1+1]

5. In corn, a triple heterozygote was obtained carrying the mutant alleles s (shrunken), w (white aleurone), and y (waxy endosperm), all paired with their normal wildtype alleles. This triple heterozygote was testcrossed, and the progeny contained 116 shrunken, white; 4 fully wild type; 2538 shrunken; 601 shrunken, waxy; 626 white; 2708 white, waxy; 2 shrunken, white, waxy; and 113 waxy.

   (a) Determine if any of these three loci are linked and, if so, show map distances.

   (b) Show the allele arrangement on the chromosomes of the triple heterozygote used in the testcross.

   (c) Calculate interference, if appropriate. [3+1+1]

6. "Recombinants never occur greater than 50% of progeny"- Explain. What are syntenic genes? Which experiment proved that genes are arranged linearly on chromosomes? [3+.5+1.5]

——— × ———