

**Rabindra Mahavidyalaya**

**Department of Zoology**

Batch: SEM-V (Hons)

Paper: CC-12 (Genetics)

Full Marks: 10

Time: 30 min

Answer any five questions. (1+1) x 5= 10

1. (a) What do you mean by lethal genes?  
(b) What is dosage compensation?
2. (a) Give an example of incomplete dominance.  
(b) Write short note on X inactivation?
3. (a) What is Huntingtin?  
(b) Describe the role of sex chromosomes?
4. (a) What type of phenotypic condition is seen in human blood group antigens?  
(b) What is the role of SRY gene in humans?
5. (a) (i) Do multiple alleles reside in the same locus? (ii) Then what are the chances of their crossing over?  
(b) Describe the characteristics of Poly X females?
6. (a) In *Drosophila* the gene for bobbed bristles (recessive allele *bb*, bobbed bristles; wild type allele *bb'* normal bristles) is located on the X chromosome and on a homologous segment of the Y chromosome. Give the genotypes and phenotypes of the offspring from the following crosses:  
$$xbbx^{bb} \times x^{bb}y^{bb}$$
  
(b) What is Turner's syndrome?
7. (a) A normal woman whose father was colour-blind has a son. Nothing is known of the colour vision phenotype of the father. What is the probability that the son will be colour-blind?  
(b) What is Klinefelter's syndrome?
8. (a) A man of blood group O marries a woman of blood group A. The wife's father is of blood group O. What are the probabilities that their children will belong to the blood group O?  
(b) What is Lyon hypothesis?