Biology - 12th Class Biology Chapter 22 Short Questions Preparation

Q1. Define product rule and pseudoautosomal genes.

Ans 1: The genes which are located both on x and y chromosomes are called x and y linked genes or pseudoautosomal genes because their pattern of inheritance is like autosomal genes.

Ans 2: **Product rule:** When we multiply probabilities of two different event,this phenomenon is called product rule.

Q2. Differentiate between gene and allele.

Ans 1: **Gene:** Gene is the basic unit of biological information.In fact DNA allstorts of biological information coded in the sequence of its bases in a linear order and genes are actually parts of DNA comprising its base sequences.

Ans 2: **Allele:** Genes form pairs on pairs of homologous chromosomes.One member of a gene pair is located on one homologue and the other homologue and the other member on the other homologue partners of a gene pair are called alleles.

Q3. What is contribution of Carl Correns in genetics?

Ans 1: Carl Correns discovered the phenomenon of incomplete dominance.
He crossed red flowered 4 O clock plant with while flowered 4 O clock plant.In $f_1$pink flowers were produced instead of red color was dominant.He again crossed pink flowers from F_1,in F_2 red,pink white flowers obtained with ratio 1:2:1 respectively.

Q4. Differentiate between autosome and sex chromosomes.

Ans 1: **Autosome chromosomes:** Chromosomes which do not contain genes for sex determination or chromosomes other than sex chromosomes are called autosomes.

Ans 2: **Sex chromosomes:** Chromosomes which play role in sex determination are called sex chromosomes.

Q5. What are multiple alleles,give its example?

Ans 1: When a gene exists in more than two alternate forms called multiple alleles.Blood group ABO is an example of multiple alleles.

Q6. How sex is determined in yeast?

Ans 1: Sex determination in yeast depends upon genic system.In this system the sexes are determined by simple allelic difference at a small number of gene loci e.g,a and a are the two mating types or sexes of yeast controlled by MAT a and MAT.a alleles respectively.

Q7. What are sex influenced traits?Give an example.

Ans 1: Sex influencing traits occurs in both males and females but more common in one sex.It is controlled by an allele that is dominant in one sex but recessive in other.The difference in expression is due hormonal difference in two sexes.E.g, patteren baldness is sex influenced trait.

Q8. What are jumping genes?

Ans 1: Jumping genes do not reside peacefully on their loci; they keep on hopping on different loci on the same chromosomes or other chromosomes.

Q9. What is hypophosphatemic rickets?

Ans 1: It is an X linked dominant trait.It is rare hereditary disease.it does not result from vitamin D deficiency but its cause is a genetic communication failure at molecular level.The genes encoding bone proteins never receive vitamin D message to function.

Q10. What is nullo gametes?

Ans 1: A gamete without sex chromosomes is called nullo gamete.For Example Grasshopper male produce 50% nullo gametes and 50% with sex chromosomes.