

## Biology - 12th Class Biology Chapter 22 Short Questions Preparation

Q1. Assign the sex of the human having XO,XXX,XXY and XYY chromosomes.

**Ans 1:** Species XX XY XO XXY  
Human Female Male Male Male  
Drosophila Female Male Female Female

Q2. Define crossing over. Give its importance.

**Ans 1:** Mendel devised a cross called test cross, which is used to test the genotype of an individual showing a dominant phenotype. It is a mating in which an individual showing a dominant phenotype is crossed with an individual showing its recessive phenotype. Significance of test cross is it is used to check the homozygosity & heterozygosity of the dominant parent.

Q3. What is dominance? Discuss over dominance.

**Ans 1:** Dominance is a physiological effect of an allele over its partner allele on the same locus.  
**Over dominance:** This relation is very interesting because the over dominant heterozygote exceeds in quantity than phenotypic expression of both the homozygotes. In fruit fly *Drosophila* the heterozygote ( $W^+/w$ ) has more quantity of fluorescent pigments in eyes than wild ( $w^+/w^+$ ) or white eye ( $w/w$ ) homozygote.

Q4. Two Normal parents have an albino child. What is the probability that their next child will also be an albino?

**Ans 1:** 3 of their sons will be normal and one will be albino that is the ratio is  
Normal : Albino  
3 : 1

Q5. Why is blood group AB called as universal recipient?

**Ans 1:** AB blood group is called recipient because they have both A and B antigens but no antibodies, so they can easily accept or receive any type of blood group i.e., A, B, AB or O.

Q6. Differentiate between multiple alleles and polygenes..

**Ans 1: Multiple alleles:** If a gene has more than two alternate forms these are called multiple alleles. For example alleles for ABO blood group. E.g., alleles for ABO blood group.

**Ans 2: Polygenes:** When a continuously varying trait is controlled by alleles for two or more than two different gene pairs found at different loci, all influencing the same trait in an additive way, such genes are called polygenes, e.g., genes for controlling skin and eye colour in human.

Q7. What is Mody? Write its causes.

**Ans 1:** About 2 to 5% of type II diabetics get the disease early in the life before 25 year of age. It is called maturity onset diabetes of the young (Mody). Mody can be inherited as an autosomal dominant trait.

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Q8. Define co-dominance.

**Ans 1:** Different alleles of a gene that are both expressed in a heterozygous condition are called co-dominance e.g. MN blood group system.

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Q9. Differentiate between continuous and discontinuous variations.

**Ans 1: Continuous variations:** In Continuous variations many intermediate forms of a trait are present and organisms show very small difference for a trait. For example skin color, eye color.

**Ans 2: Discontinuous variations:** In discontinuous variations very sharp difference is present and no intermediate forms are present for a trait. For example tongue rolling, attached or free pinna.

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Q10. What is monochromacy?

**Ans 1:** Monochromacy means only one colour can be perceived by the colour blind person. Monochromacy is true colour blindness.

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