

## Chapter - 9

### Heredity And Evolution

**Q. 1 Clones of sheep are carbon copy of each other except physical health. What kind of variation is it?** **1 Mark**

Ans Phenotypic variation

**Q. 2 What will be the sex of a baby if sperm carrying X chromosome fertilizes egg in human beings. Why?** **2 Marks**

Ans. It will be a baby girl because fusion of gametes having X chromosomes leads to homozygous condition producing zygote with XX composition.

**Q. 3 Feather imprints were preserved along the dinosaur's bones but dinosaurs could not fly. What was the significance of feathers in reptiles and later on for other species?** **2 Marks**

Ans. It is believed that feathers in dinosaurs might have provided insulation in cold weather but later on became useful for flights in birds.

**Q. 4 Wild cabbage was converted into number of variants like cauliflower, broccoli and cabbage by man. What is this process known as? Does it play an important role in organic evolution?** **3 Marks**

Ans. This process is known as artificial selection. It plays an important role in organic evolution because it is parallel to natural selection. It helps to produce new species having useful traits in less time.

**Q. 5 How are variant genotypes produced?** **3 Marks**

Ans. Variant genotypes can be produced by:-

1. Mutation in genes and chromosomes.
2. Recombination of genes.
3. Hybridization of genes.

**Q. 6 Can geographical isolation lead to speciation? How?** **2 Marks**

Ans. Yes, geographical isolation can lead to speciation. Due to geographical isolation, the members of two sub groups may not be able to interbreed as a result of genetic drift. Natural selection also operates differently in these subgroups. This leads to speciation.

**Q. 7 What will be the blood groups of offspring's produced by the parents having following genotype?** **2 Marks**

Male -  $I^A I^B$

Female -  $I^O I^A$

Ans.

↓GAMETES→	$I^O$	$I^A$
$I^A$	$I^A I^O$ (i)	$I^A I^A$ (ii)
$I^B$	$I^B I^O$ (iii)	$I^A I^B$ (iv)

Blood groups will be:

- (i) A
- (ii) A
- (iii) B
- (iv) AB

**Q. 8 A woman with blonde curly hair married a man with black soft hair. All of their children in first generation had black soft hair but in next generation children had different combinations in the ratio of 9:3:3:1. State the law that governs this expression. 2 Marks**

Ans. Law of independent assortment which states that the factors of different pairs of contrasting characters do not influence each other. They are independent of one another in their assortment.