

Hereditiy - Class X - Paper Set No. 1

1. What is heredity?
 - (a) Process of survival of organisms
 - (b) Transmission of characteristics from parents to offspring
 - (c) Process of digestion in organisms
 - (d) Adaptation of organisms to the environment
2. Who is known as the father of genetics?
 - (a) Charles Darwin
 - (b) Louis Pasteur
 - (c) Gregor Mendel
 - (d) Isaac Newton
3. Which of the following traits would be considered dominant if expressed in the F1 generation of Mendel's pea plant experiment?
 - (a) Wrinkled seeds
 - (b) Short plant height
 - (c) Violet flower color
 - (d) Yellow pod color
4. How are characteristics inherited in sexually reproducing organisms?
 - (a) Through mitosis only
 - (b) By a single copy of genes from one parent
 - (c) By receiving equal contributions of genes from both parents
 - (d) Through a single chromosome from each parent
5. What did Mendel's experiments reveal about the inheritance of traits?
 - (a) Traits are always expressed in offspring
 - (b) Traits are independently inherited and can be dominant or recessive
 - (c) Traits do not vary in any generation
 - (d) All traits are recessive

6. Which type of inheritance pattern did Mendel observe in his dihybrid cross experiments?
- (a) Linked inheritance (b) Independent assortment
(c) Co-dominance (d) Mutational inheritance
7. In humans, how is the sex of a child determined?
- (a) By the chromosomes inherited from the mother
(b) By environmental conditions
(c) By the chromosomes inherited from the father
(d) By the age of the parents
8. Which of the following genotypes represents a heterozygous condition?
- (a) TT (b) Tt
(c) tt (d) None of the above
9. What ratio of traits did Mendel observe in the F₂ generation of his monohybrid cross?
- (a) 2:2 (b) 3:1
(c) 1:1 (d) 4:0
10. What term describes the alternative forms of a gene?
- (a) Chromosomes (b) Traits
(c) Alleles (d) Enzymes

Answer Key for Paper Set No. 1:

- (b) Transmission of characteristics from parents to offspring
- (c) Gregor Mendel
- (c) Violet flower color
- (c) By receiving equal contributions of genes from both parents
- (b) Traits are independently inherited and can be dominant or recessive
- (b) Independent assortment
- (c) By the chromosomes inherited from the father
- (b) Tt
- (b) 3:1
- (c) Alleles