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**Level – 1**

**(Based on Monohybrid Cross)**

1. Which one of the following traits of garden pea studied by Mendel was a recessive feature?
2. The gene controlling the seven pea characters studied by Mendel are now known to be located on how many different chromosomes?
3. Two crosses between the same pair of genotypes or phenotypes in which the source of the gametes are reversed in one cross is known as :
4. Independent assortment of genes does not take place when :
5. genes are located on homologous chromosomes
6. Genes are linked and located on same chromosomes.
7. Genes are located on non-homologous chromosomes
8. all the above
9. A gene is said to be dominant if :
10. it express its effect only in homozygous state
11. it express its effect only in heterozygous state.
12. it express its effect both in homozygous and heterozygous state
13. it never express its effect in any condition.
14. In order to find out different types of gametes produced by a pea plant having the genotype AaBb, it should be crossed to a plant with the genotype.
15. Suppose that in sheep, a dominant allele (B) produces black hair and a recessive allele (b) produces white hair. If you saw a black sheep, you would be able to identify:

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| a) its phenotype for hair colour | b) its genotype for hair colour |
| c) the genotypes for only one of its parents | d) the genotypes for both of its parents |

1. True-breeding plants :
2. Produce the same offspring when crossed for many generations.
3. result from a monohybrid cross.
4. result from a dihybrid cross.
5. result from crossing over during prophase I of meiosis.
6. Two organisms that are true breeding for a certain genetic characteristics are mated and their offspring are analysed. Which of the following statement is correct?
7. Both parents are homozygotes.
8. The offspring are either all homozygotes or all heterozygotes.
9. The offspring represents the F1 generation and the gametes produced by the offspring will carry only one allele for his gene.
10. All the above.
11. A pea plant that is heterozygous for the flower gene makes gametes. What is the probability that one of its gametes contain the recessive white allele for flower colour?
12. Consider a gene that has two alleles and shows complete dominance. when two heterozygous for this gene breed, they have a 25 % chance of producing a homozygous recessive offspring. The next time they breed, what are the chances that they will once again have a homozygous recessive progeny?
13. Why is the allele for wrinkled seed shape in garden peas considered recessive?
14. It ‘recedes’ in the F2 generation when homozygous parents are crossed.
15. The trait associated with the allele is not expressed in heterozygotes.
16. Individuals with the allele have lower fitness than that of individuals with the dominant allele.
17. The allele is less common than the dominant allele.
18. The allele found in haploid organisms cannot be dominant or recessive. Why?
19. Dominance or recessiveness describe interactions between two alleles of the same gene in the same individual.
20. Because only one allele is present , alleles in haploid organisms are always dominant.
21. Alleles in haploid individuals are transmitted the mitochondrial DNA or chloroplast DNA.
22. Most haploid individuals are bacteria, and bacterial genetics is completely different from eukaryotic genetics.
23. Mendel’s rules do not correctly predict patterns of inheritance for tightly linked genes or the inheritance of alleles that show incomplete dominance or epistasis. Does this mean that his hypothesis are incorrect?
24. Testes in human male lie :

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| a) | b) |
| c) | d) |

1. Sertoli cells are present in :

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| a) | b) | c) | d) |

1. Leydig’s cells are present in the :