

**UNIT - 1**

1. An allele that is not expressed in a heterozygote is an example of a(n):  
a) gene  
b) allele.  
c) recessive trait  
d) dominant trait.
2. A mating between two related individuals is a:  
a) monohybrid cross  
b) multi-hybrid cross.  
c) pedigree.  
d) consanguineous mating
3. The alleles present in an individual for a given trait constitute its:  
a) phenotype.  
b) genotype.  
c) homozygote  
d) heterozygote
4. An individual with two different alleles for a given trait is known as a(n):  
a) phenotype  
b) genotype.  
c) homozygote  
d) heterozygote.
5. The observable characteristic for a given trait is known as the:  
a) phenotype  
b) genotype.  
c) homozygote.  
d) heterozygote
6. Pairs of alleles that separate during gamete formation illustrate the:  
a) law of independent assortment  
b) law of the product.  
c) law of the sum  
d) law of segregation.
7. The probability of either of two mutually exclusive events occurring together is given by the:  
a) law of independent assortment  
b) law of the product.  
c) law of the sum  
d) law of segregation.
8. Pairs of alleles that distribute randomly in gametes without regard to other pairs of alleles illustrate the:  
a) law of independent assortment  
b) law of the product.  
c) law of the sum  
d) law of segregation.
9. A representation of phenotypic ratios of offspring is given by the:  
a) law of the product  
b) law of the sum.  
c) law of segregation  
d) Punnett square



18. Among the crosses below, which will give a 1:1 ratio of genotypes?  
a) AABB × aabb  
b) AaBb × AaBb  
c) AaBb × aabb  
d) AaBB × aaBB
19. Among the crosses below which will give a 1:1:1:1 ratio of genotypes in the F<sub>1</sub>?  
a) AABB × aabb  
b) AaBb × AaBb  
c) AaBb × aabb  
d) AaBB × aaBB
20. In a particular plant, hairy leaves (H) are dominant to smooth leaves (h) and vining growth habit (V) is dominant to bushy (v). A vining plant with hairy leaves of unknown genotype was crossed to a bushy plant with smooth leaves. The resulting progeny all had vining growth habit, but half had hairy leaves and half had smooth leaves. What was the genotype of the unknown parental vining plant with hairy leaves?  
a) hhVv  
b) HHvv  
c) HhVv  
d) HhVV
21. True-breeding pea plants that have yellow, wrinkled seeds, yellow pods, and purple flowers were crossed with true-breeding pea plants that have green, smooth seeds, green pods, and white flowers. The resulting F<sub>1</sub> progeny from that cross all have yellow, smooth seeds, green pods, and purple flowers. If the F<sub>1</sub> from the cross above are crossed with true-breeding yellow, wrinkled seed, yellow pod, purple flower plants, what is the probability of observing an F<sub>2</sub> plant with yellow, smooth seeds, yellow pods, and purple flowers?  
a) 1/16  
b) 1/8  
c) 1/4  
d) 1/2
22. A woman whose father was diagnosed with the dominant Huntington Disease (HD) marries a man whose family has no history of the disease. The woman does not know if she carries the trait and she is pregnant with the couple's first child. What is the probability that the child will develop HD?  
a) 1  
b) 1/16  
c) 1/4  
d) 1/2
23. Cystic fibrosis (CF) is a recessive trait that causes a fatal lung disorder, with symptoms beginning in early childhood. A healthy woman whose brother has CF marries a healthy man who has a sister with CF. What is the probability that their first child will have CF?  
a) 0  
b) 1/64  
c) 1/16  
d) 1/9



32. A person who has type A blood has:  
a) anti-A antibodies  
b) anti-B antibodies  
c) anti-AB antibodies  
d) both anti-A and -B antibodies
33. From a cross of heterozygotes, which of the following ratios indicates a lethal gene?  
a) 2:1  
b) 3:1  
c) 1:2:1  
d) 1:1
34. A trait caused by environmental agents that mimic a disease allele's effects can be described as:  
a) pleiotropic  
b) co-dominant  
c) phenocopy  
d) completely dominant
35. Height in humans is an example of a \_\_\_\_\_ trait.  
a) quantitative  
b) continuous  
c) polygenic  
d) all of the above
36. The genes  $I^A$ ,  $I^B$ , and  $i$  contribute to the ABO blood antigens in humans. In another trait,  $R$  ( $Rh^+$ ) is dominant to  $r$  ( $Rh^-$ ). If a mother with a phenotype of  $A/Rh^+$  has a child with a phenotype of  $O/Rh^+$ , which one of the possible genotypes is not possible for the father?  
a)  $I^A i rr$   
b)  $I^B i RR$   
c)  $ii Rr$   
d)  $I^A I^A RR$
37. If a mother with a phenotype of  $B/Rh^-$  has a child with a phenotype of  $O/Rh^-$ , which one of the following genotypes is possible for the father?  
a)  $I^A i rr$   
b)  $I^B i RR$   
c)  $I^A I^B rr$   
d)  $I^B I^B Rr$
38. The genes  $I^A$ ,  $I^B$ , and  $i$  contribute to the ABO blood antigens in humans. In two other traits,  $R$  ( $Rh^+$ ) is dominant to  $r$  ( $Rh^-$ ) and  $M$  and  $N$  are codominant alleles. If a mother with the blood type of  $A Rh^+ N$  has a child of phenotype  $AB Rh^+ MN$ , which genotype is possible for the father?  
a)  $I^A i rr MN$   
b)  $I^B i RR MN$   
c)  $ii rr NN$   
d)  $ii rr MM$
39. If a mother with a phenotype of  $AB Rh^- MN$  has a child with a phenotype  $A Rh^- MM$ , which genotype is possible for the father?  
a)  $I^A i rr MN$   
b)  $I^B i RR MN$   
c)  $I^B I^B Rr MM$   
d)  $I^A I^A RR MN$