Genetic Inheritance Quiz Answer Key PDF

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Which genetic disorder is inherited in an autosomal recessiv pattern?

A. Huntington's disease
B. Cystic fibrosis ✓
C. Marfan syndrome
D. Duchenne muscular dystrophy

Which law states that alleles for different traits are inherited independently of each other?

A. Law of Segregation
B. Law of Independent Assortment ✓
C. Law of Dominanc
D. Law of Inheritance

What is the observable characteristic of an organism called?

A. Genotype
B. Phenotype ✓
C. Alleles
D. Chromosome

Which term describes having two identical alleles for a specific gene?

A. Heterozygous
B. Homozygous ✓
C. Dominant
D. Recessiv

What is the basic unit of heredity?

A. Chromosome
B. Gene ✓
C. Alleles
D. DNA

Which type of inheritance involves both alleles being fully expressed in a heterozygote?

A. Dominant
B. Recessiv
C. Co-dominant ✓
D. Incomplete Dominant

Explain the difference between genotype and phenotype.

Genotype refers to the genetic makeup of an organism, while phenotype is the observable characteristics or traits.

Describe how a Punnett Square is used to predict genetic outcomes.

A Punnett Square is a grid that shows the possible combinations of alleles from the parents, predicting the probability of offspring inheriting certain traits.

What is genetic drift, and how does it affect populations?

Genetic drift is a random change in allele frequencies in a population, which can lead to genetic variation or loss of genetic diversity over time.

What is the purpose of a Punnett Square?

A. To sequence DNA
B. To map chromosomes
C. To predict genetic trait probabilities ✓
D. To analyze protein structures

Which of the following is a sex-linked trait?

A. Blood type

B. Eye color
C. Hemophilia ✓
D. Hair color

Which of the following are examples of polygenic traits? (Select all that apply)

A. Skin color ✓
B. Height ✓
C. Blood type
D. Eye color ✓

Discuss the significance of Mendel's experiments with pea plants in understanding inheritance.

These experiments established the foundational principles of inheritance, including the concepts of dominant and recessiv traits and the laws of segregation and independent assortment.

How do sex-linked traits differ from autosomal traits in terms of inheritance patterns?

Sex-linked traits are associated with genes on sex chromosomes, often resulting in different inheritance patterns between males and females, while autosomal traits are linked to non-sex chromosomes and typically affect both sexes equally.

Explain the concept of incomplete dominance and provide an example.

Incomplete dominance occurs when the phenotype of a heterozygote is intermediate between the phenotypes of the homozygotes, such as in the case of red and white flowers producing pink offspring.

Which processes contribute to genetic variation? (Select all that apply)

A. Mutation ✓
B. Genetic Drift ✓
C. Natural Selection ✓
D. Cloning

Which of the following are Mendel's laws of inheritance? (Select all that apply)

A. Law of Segregation ✓
B. Law of Dominanc ✓
C. Law of Independent Assortment ✓
D. Law of Gene Flow

Which tools are used in genetic analysis? (Select all that apply)

A. Punnett Square ✓
B. Pedigree Chart ✓
C. Genetic Drift
D. DNA Sequencing ✓

Which statements are true about alleles? (Select all that apply)

A. Alleles are different forms of a gene. ✓
B. Alleles are located on chromosomes. ✓
C. An organism inherits two alleles for each gene, one from each parent. ✓
D. Alleles are only found in sex cells.

Which of the following are characteristics of X-linked recessiv disorders? (Select all that apply)

A. More common in males ✓
B. Passed from father to son
C. Females can be carriers ✓
D. Affected females must have an affected father ✓