**Name: Date: Class:**

Genetics Test Study Guide

**Directions:** Write the following answers on a sheet of notebook paper.

***Part 1: Vocabulary-Define all of the following terms:***

1. Gene
2. Trait
3. Genotype
4. Phenotype
5. DNA
6. Dominant
7. Recessive
8. Allele
9. Chromosome
10. Heredity
11. Genetics
12. Heterozygous
13. Homozygous
14. Purebred
15. Hybrid
16. Carrier
17. Sex-Linked Gene
18. Multiple Alleles
19. Incomplete Dominance
20. Pedigree

***Part 2: Answer the following questions below:***

1. Who is considered the “father” of genetics?
2. What are chromosomes made of?
3. What is the difference between ***mitosis*** and ***meiosis***?
4. Which cell process produces ONLY gametes, or sex cells?
5. What is haploid? Give an example of a haploid cell.
6. What is diploid? Give an example of a diploid cell.
7. DNA consists of a repeating series of ?
8. What ***THREE*** components make up a nucleotide?
9. A is any change in a gene or chromosome.
10. What is a substitution mutation?
11. What is an addition mutation?
12. What is a deletion mutation?
13. How many chromosomes are in every human ***somatic*** cell?
14. How many chromosomes are in every ***gamete***?
15. In order to see a recessive trait in an organism’s phenotype, what must be the organism’s genotype?
16. A plant with a dominant homozygous trait is crossed with a plant with a recessive homozygous version of that trait. What is the probability that the offspring will display the dominant trait in its phenotype?
17. What is the genotype for females?
18. What is the genotype for males?
19. Sex chromosomes are located on which pair of chromosomes? (#)
20. An organism with TWO different alleles for a particular trait is considered to be or .
21. Which answer correctly fills the empty box in the Punnett square? What is the phenotype expressed by this allele combination?

a

A

A

Aa

AA

a

Aa

1. Freckles=recessive. Cross a **heterozygous** parent with **NO** freckles with a parent with freckles. What is the probability that the offspring will have freckles?
2. In dogs, long tails are dominant over short tails. Cross a ***heterozygous*** tailed dog with a ***homozygous recessive*** dog. What is the probability that the dog will have a long tail? What is the probability that the dog will have a short tail?
3. In a pedigree, what symbols represent females?
4. In a pedigree, what symbols represent males?
5. In a pedigree, shaded in symbols mean what?
6. In a pedigree, symbols that are NOT shaded in mean what?
7. In a pedigree, half shaded in symbols mean what?
8. Colorblind is a sex linked trait. Normal vision is dominant (N) or colorblind (n). Cross a female with normal vision and is heterozygous, with a colorblind male.

* What is the female’s genotype?
* What is the male’s genotype?
* What are the chances of having a female child who is colorblind?
* What are the chances of having a male child who is colorblind?

1. Complete the Punnett square. What is the ratio for the phenotype and genotype? (2 answers!)

R

R

r

r