Name _____ Date _____ Period _____

Worksheet: Unit 6 Test Review

H O N O R S B I O L O G Y : G E N E T I C S

Directions: *Use your notes and book to answer the following questions completely. A good effort on the study guide will help improve your performance on the test.*

Part 1: Define the following terms:

1. **Genetics**-

2. **Gene**-

3. **Allele**-

4. **Dominant**-

5. **Recessive**-

6. **Homozygous**-

7. **Heterozygous**-

8. **Genotype**-

9. **Phenotype**-

10. **Genome**-

11. **Carrier**-

12. **Polygenic traits**-

13. **Pedigree**-

14. **Independent assortment**-

15. **Crossing over**-

16. **Linked genes**-

17. **Karyotype**-

    18. **Autosomes**-

    19. **Sex chromosomes**-

20. **Epigenetics**-

    21. **Epigenome**-

    22. **Imprinted gene**-

    23. **Methyl and acetyl groups**-

24. **Test Cross**-

25. **Epistasis**-

26. **Linked genes**-

Part 2: Describe the following types of genetic crosses. Include an example.

1. **Dominant/recessive**-

2. **Incomplete dominance**-

3. **Codominance**-

4. **Sex-linked**-

5. **Multiple alleles**-

6. **Dihybrid cross**-

Part 3: Punnett Squares

1. Assume that blood type is inherited as A and B dominant over O, but A and B are codominant over each other. Genotypes (I^A I^A) and (I^A i) are then phenotypically type A, genotypes (I^B I^B) and (I^B i) are type B, genotype (I^A I^B) is type AB, and genotype (i i) is type O blood. A man with blood type $\boldsymbol{I^A\ I^B}$ marries a woman with type ***i i*** blood. What are the genotypic and phenotypic ratios of the offspring?

2. In certain breeds of dogs, deafness is due to a recessive allele (**d**) of a particular gene, and normal hearing is due to its dominant allele (**D**). A heterozygous normal dog is crossed with heterozygous normal dog. What are the genotypic and phenotypic ratios of the offspring?

3. In snapdragons, red (**R**) is not completely dominant over white (**r**) flowers. What color flowers would you expect when you cross a pink flower with a white flower? What are the genotypic and phenotypic ratios of the offspring?

4. In humans, hemophilia is a sex-linked trait due to the recessive allele (**h**), and normal is due to the dominant allele (**H**). What is the expected offspring between a man with hemophilia and a woman who is a carrier for hemophilia? Give both genotypic and phenotypic ratios

5. In rabbits there is a **C** gene which is responsible for fully colored coats. There are three other genes located at the same locus (location), **c^{ch}, c^{h}, c**. These genes can be arranged in a series in which each gene is dominant to the genes following it (**C, c^{ch}, c^{h}, and c**). Refer to the chart below which describes genotypes and phenotypes to complete the following genetic cross.

Complete the following genetic cross: **Cc^{ch} X $c^{ch}c^{h}$**

Genotypes	Phenotypes
CC, Cc^{ch}, Cc^{h}, Cc	Full color
$c^{ch}c^{ch}$, $c^{ch}c^{h}$, $c^{ch}c$	Chinchilla
$c^{h}c^{h}$, $c^{h}c$	Himilayan
cc	Albino