

Name Answer Key

Biol 130 Genetics  
Quiz 5  
March 21, 2007 SPRING!!!

1. What genetic terms best describe the following genetic traits? Give one specific example for each.

a. When neither of the true-breeding parental traits are exhibited in the offspring. Instead an intermediate phenotype is expressed. Incomplete dominance +0.5

Example: snapdragon color dominant homozygous = red- +0.5  
recessive = white  
heterozygous = pink

b. When a heterozygote displays both phenotypes equally. co-dominance +0.5

Example ABO blood type  
AB = both types of carbohydrates present on red blood cells. +0.5

2. Researchers observed that among humans who inhabit a particular tropical island, 15 out of 500 are albino, a recessive phenotype.

a. Assuming Hardy-Weinberg equilibrium, what is the frequency of the albino allele? +1

$$15/500 = q^2 \quad q = \sqrt{0.03} = 0.17$$

b. What is the predicted number of heterozygotes? +1

$$(2pq)500 = 141$$

$$p = 1 - q$$

$$p = 0.83$$

3. If albinos are more susceptible to skin cancer and early death  
a. would the frequency of the albino allele increase, decrease or remain unchanged? +0.5

b. Would the frequency of the normal allele increase, decrease or remain unchanged? +0.5

c. Which one of the Hardy-Weinberg assumptions would NOT hold true in this case? +1

no natural selection would not be true  
i.e. natural selection would be occurring