Quiz 3 BSC 2011 Fall 2004

NAME__**KEY – correct answers given in bold type**__

Circle the best answer to each question (3 pt each, except # 4, which is 4 pt)

1. Which of the following is **not** a requirement for the maintenance of Hardy–Weinberg equilibrium?
   a. large population size
   b. non-random migration
   c. absence of mutation
   d. no natural selection
   e. all are required.

2. Which field of study did NOT contribute to the development of Darwin's ideas on evolution by natural selection

   a. Geology
   b. Population growth
   c. Mendelian Genetics
   d. Comparative embryology
   e. Biogeography

3. In a hypothetical population of worms, a single locus with two possible alleles controls color. If there are 12 individuals in the population and 4 are homozygous dominant at the worm color locus, 4 are heterozygous and 4 are homozygous recessive, what is the frequency of the recessive allele in the gene pool? (Hint: use the definition of allele frequency to determine your answer).
   a. 0
   b. 1/4
   c. 1/3
   d. 1/2
   e. 3/4

4. In a population of the above mentioned worms that is at Hardy-Weinberg equilibrium, you measure the frequency of the dominant allele and find it to be 0.4. What is the expected frequency of homozygous dominant individuals in the population?
   a. .16
   b. .25
   c. .40
   d. .48
   e. .60

5. Which of the following is true of structures that show analogy (or are analogous)?
   a. They have the same developmental origin
   b. They have no current function
   c. They can be traced to a common ancestor
   d. They serve similar functions
   e. None of these is true

6. Which of the following is a likely result of genetic drift

a. Gene fixation
b. Introduction of new alleles
c. Natural selection
d. Gene flow
e. Migration

7. Which of the following is a likely result of negative assortative mating in a population?

a. Increased frequency of recessive alleles
b. Increased rate of inbreeding
c. Increased frequency of dominant alleles
d. Increased frequency of homozygotes
e. Increased frequency of heterozygotes

8. By itself, the equation: **p + q = 1** tells us that

a. the frequencies of alleles in a population are not changed by random mating
b. the sum of the frequencies of two alternate alleles at a locus must total 1.0
c. genotype frequencies can be calculated if allele frequencies are known
d. there are only two possible genotypes in this population
e. a population that does not conform to this equation is evolving