Quiz 4

Today begins a new dawn of Principles of Ecology.....
Question 1

Tall people generally have tall parents, and short people tend to have short parents. Based on this observation, we can infer that height is

a. evolving in the human population.

b. a heritable trait.

c. due to a single gene.

d. Both a and b

e. Both b and c
Question 2

Suppose a population of shorthorn cattle has only two alleles (R and r) at a locus. If the frequency of R is 0.37, what is the frequency of r?

a. 0.37
b. 0.5
c. 0.63
d. 0.77
e. The frequency of r cannot be computed based on the information above.
Question 3

If a population of monkeyflowers has 500 members with 135 of genotype $DD$, 280 of genotype $Dd$, and 85 of genotype $dd$, what is the frequency of the $D$ allele?

a. 0.275  
b. 0.415  
c. 0.45  
d. 0.5  
e. 0.55
Question 4

Which of the following cannot be an example of evolution?

a. As a consequence of legislation promoting cleaner air, the frequency of black peppered moths in Europe has decreased in the last half century.

b. After repeated exposure to high temperatures, an individual turtle can tolerate heat more successfully.

c. As a consequence of climate change, robins in the northeastern United States sing earlier in the spring than they did two decades ago.

d. Due to a genetic bottleneck, the frequency of one allele has increased in a population of Drosophila subobscura.

e. All of the above can be examples of evolution.
Question 5

Which of the following statements about genetic drift is false?

a. It affects allele frequencies the most when populations are small.
b. It can cause slightly deleterious alleles to be fixed in populations.
c. It tends to decrease genetic variation within populations.
d. It tends to decrease genetic differences among different populations.
e. All of the above are true; none is false.
Question 6

Which of the following pairs of evolutionary processes can introduce new alleles into a population?

a. Mutation and recombination
b. Mutation and genetic drift
c. Genetic drift and recombination
d. Disruptive selection and gene flow
e. Gene flow and mutation
Question 7

Suppose that several flies of a population that previously fed on blueberries start to feed on honeysuckle. Due to genetic differences that accumulate as the flies adapt to feeding on honeysuckle, these “honeysuckle” flies eventually breed earlier than the ancestral flies. This change most likely represents an early stage of speciation brought about by

a. a geographical barrier.
b. an ecological barrier.
c. genetic drift.
d. gene flow.
e. adaptive radiations.
Question 8

• Which of the following periods occurred longest ago?
  longest ago?

a. Pleistocene
b. Cretaceous
c. Carboniferous
d. Silurian
e. Cambrian
Question 9

Four clownfish individuals of the species *Premnas biaculeatus* live in a single anemone. Albert measures 15 cm, Barry is 12 cm, Cindy is 8 cm, and Diane is 6 cm. Based on what you know about clownfish biology, which of the following statements is most likely true?

a. Albert is the only female.
b. Barry is the only female.
c. Diane is the only female.
d. Albert and Barry are both females.
e. Cindy and Diane are both females.
The term “r-selection” refers to selection
a. to increase age at sexual maturity.
b. under crowded conditions.
c. for high population growth rates.
d. for iteroparity.
e. None of the above