Sexual conflict occurs when there is

a) polygyny *b) polyandry c) promiscuity d) polygeny e) all of the above

In a correlated response to selection

a) a pair of traits that are functionally integrated change due to selection on one of them
b) a pair of traits that are allometrically related change due to selection on one of them
c) a pair of traits that are phylogenetically related change due to selection on one of them
*d) a pair of traits that are genetically correlated change due to selection on one of them
e) a pair of traits that are in different species change in a concordant manner

Which of the following statements is false?

a) Additive genetic variance is affected by allele frequencies.
b) Traits that have only dominance variance cannot evolve under selection.
c) Additive variance decreases under directional selection.
*d) Additive variance for most fitness-related traits is low.
e) Additive variance can be estimated by from parent-offspring regression.

The stomach lysozyme of the hoatzin represents an example of _____ at the molecular level.

*a) convergence b) positive selection c) selective sweep
d) purifying selection e) hitchhiking

Which of the following statements about the comparative method is <u>false</u>?

a) It tests hypotheses of adaptation by comparing patterns of variation among species.
b) It requires a phylogeny for all species to be tested.
c) It corrects for the effects of common ancestry.
*d) It corrects for the effects of allometry.
e) It is as valid as the experimental approach in evaluating adaptation.

Which of the following is unlikely to be a direct benefit in mate choice?

a) spermatophylax b) male territory c) lower pathogen load d) nuptial gift
*e) better offspring

In the garter snakes studied by Arnold, the feeding response to slugs was highly correlated with the feeding response to leeches ($r_G = 0.89$ in each population). Consider a population where the response to both types of prey is initially low, because both slugs and leeches are uncommon. Global warming causes an increase in rainfall with a subsequent increase in both species, while other types of prey become rarer. How do you expect the population to evolve?

a) slugs and leeches will comprise 89% of the diet of this population
b) snakes will begin to each more leeches but the feeding preference will be constrained by the response to slugs
*c) snakes will begin to each more slugs but the feeding preference will be constrained by the response to leeches
d) the population will become extinct because the feeding response to both prey species is low
e) the population will become extinct because all snakes will eventually eat leeches

If a trait is subject to stabilizing selection, over several generations we expect to see:

*a) a decline in the variance, but no change in the mean
b) a decline in the variance, and a decline in the mean
c) an increase in the variance, but no change in the mean
d) an increase in the variance, and an increase in the mean
e) no change in the variance, and no change in the mean

In the context of adaptation, the diverse beaks of the Galapagos finches represent an example of:

a) how adaptation is not perfection
b) how every trait is not an adaptation
c) how all differences between traits are not adaptations
*d) how adaptation can constrain evolution
e) all of the above

In northern elephant seals, the dominant males ("beachmasters") father the majority of all offspring. Subdominant males mate occasionally. These are likely to be:

*a) younger males
b) older males
c) males that resemble females
d) males that are the sons of the dominant male
e) males that are larger than the dominant male

Which of the following could <u>not</u> be used to estimate the heritability of a trait?

a) the regression of average offspring on average parent
b) the regression of sons on fathers
*c) the regression of sons on foster fathers
d) the regression of daughters on mothers
e) the response to selection

Which of the following is most likely to be an adaptation?

a) spot pattern differences of reticulated and Masai giraffes
b) red pigmentation of mammalian and insect blood
*c) size differences between left and right claws of fiddler crabs
d) plumage differences among grouse chicks
e) amount of repetitive DNA in the genome

In the large cactus finch, there are four distinct dry season foraging strategies. Each strategy is associated with a specific beak morphology. What is the best explanation for why the cactus finch has not differentiated into four subspecies?

a) There is insufficient additive variance for beak morphology.
b) There is insufficient selection on beak morphology.
*c) Selection is relaxed during the wet season
d) Mating is random with respect to beak morphology
e) All of the above

In Pfennig's study of Batesian mimicry in kingsnakes he used three replicas–plain brown, aposematic/non-mimetic and mimetic. What was the purpose of the aposematic replica?

*a) a control for warning coloration
b) a control for bright coloration
c) a control for novel coloration
d) a control for mimetic pattern
e) a control for handling

Female guppies differ within and among populations in their preference for the amount of orange on a male. Orange is a carotenoid pigment that is a consequence of male diet as well as genotype. You survey a number of streams, each with a distinct population of guppies. What overall pattern is most likely?

a) in each population males have large amounts of orange
b) in those populations without predators, males have large amounts of orange
c) the average amount of orange will vary among populations
*d) the average amount of orange will vary among populations and will be correlated with the average female preference
e) all females will come to prefer orange males because this indicates male quality

In a mass selection experiment on tail length, the mean of the selected parents (those that reproduce) is 24 cm, while that of the entire population is 18 cm. Tail length in the offspring population is 20 cm. Which of the following statements is most accurate?

a) The heritability is 0.5
b) The heritability is 0.9
c) The heritability is 0.1
*d) The heritability is 0.3
e) You can't estimate the heritability from these data

Which of the following statements about traits that evolve because of sensory bias is false?

a) Females of species whose males do not express the trait will have a preference for the trait.
*b) The degree to which females prefer the trait will be positively correlated with the degree to which males express the trait.
c) Females do not benefit from their preference for the trait.
d) The male signal is derived from another context (e.g., foraging).
e) All of the above statements are true.