

**YOU MUST HAND IN THIS BOOKLET ALONG WITH YOUR SCANTRON SHEET!**

*All multiple choice questions are worth 1 point each. Each question will have only 1 correct answer – be sure to select the best possible answer for each question. Along with filling out the electronic answer (scantron) sheet you must also indicate your answers on this question form. The scantron sheet will not be returned to you, we will return your answer form.*

1) Which of the following is NOT one of Darwin's five theories of evolution?

- a. Species change over time (evolution as such).
- b. Evolution is gradual.
- c. All organisms share a common ancestry.
- d. Evolution occurs through natural selection.
- e. **Evolution leads to the fixity, or fixation, of species.**

2) Genotype refers to an individual's \_\_\_\_\_ while phenotype refers to \_\_\_\_\_.

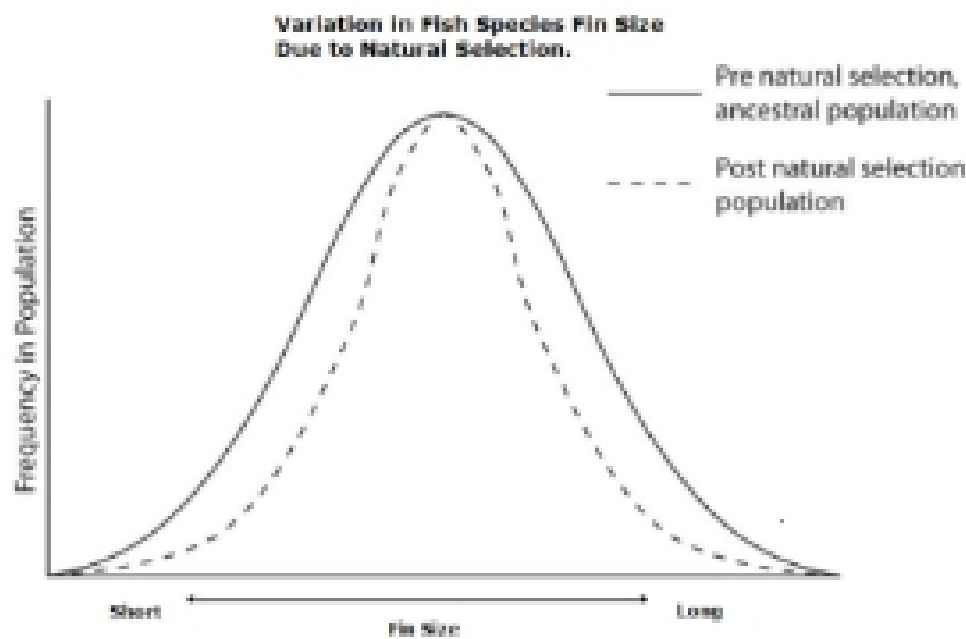
- a. reproductive success... successful adaptations produced by Natural Selection
- b. **actual genetic make-up... the observable characteristics of an individual**
- c. successful adaptations produced by Natural Selection... reproductive success of an individual
- d. observable characteristics... actual genetic make-up of an individual
- e. sex... its species

3) Which of the following is TRUE of sexual selection?

- a. It has less to do with reproduction, and more to do with "survival" of the individual.
- b. **It can lead to the selection of traits that might otherwise seem detrimental to survival.**
- c. Female mate choice plays a minimal role.
- d. It is not a form of natural selection.
- e. It is the result of genetic drift and gene flow.

4) One of Mendel's principles, which states that an allele from the mother or father are both equally likely to be transmitted when gametes are formed, is called \_\_\_\_\_.

- a. natural selection
- b. the modern synthesis
- c. **independent assortment**
- d. founder effect
- e. genetic drift



5) A species of fish exhibits variety in fin size which affects an individual's reproductive success. The fish with the smallest fins fall victim to predators more frequently because they cannot swim fast enough. The fish with the largest fins, while able to out-swim their predators, are not able to find enough food to meet their high energy needs. Consequently, the number of fish with medium-sized fins increases from generation to generation, as is reflected in the graph above. What mode of selection does this example illustrate?

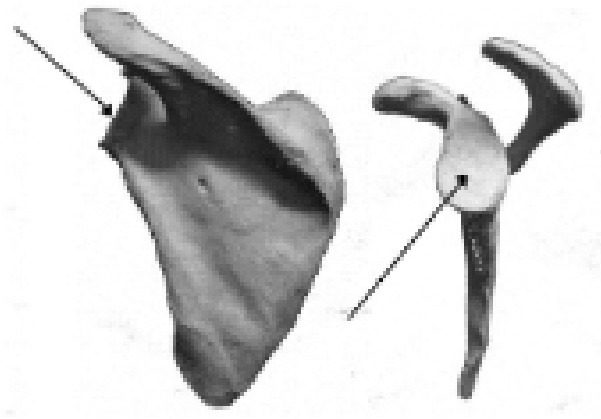
- a. gamete selection
- b. directional selection
- c. disruptive selection
- d. stabilizing selection**
- e. artificial selection

6) Hamadryas (*Papio hamadryas*) and savanna baboons (*Papio cynocephalus*) occupy neighboring but different habitats and have different mating behaviors in the environments in which they live. Offspring of a hamadryas and savanna baboon mating are not very capable at procuring mating opportunities in either society or environment, resulting in lower reproductive success for the hybrids. Which type of speciation does this represent?

- a. pleiotropy
- b. allopatric speciation
- c. monotonous speciation
- d. parapatric speciation**
- e. sympatric speciation

7) Which of the following traits is critical for constructing evolutionary relationships within a lineage (e.g. understanding the relatedness of different but related species; a cladogram)?

- a. Single derived traits
- b. Homologous traits
- c. Shared derived traits**
- d. Ancestral traits
- e. Heterozygous traits



8) Refer to the image above: to what feature is the arrow pointing?

- a. foramen magnum
- b. acetabulum
- c. pubis
- d. blade
- e. **glenoid fossa**

9) Refer to the image above: what bone is depicted?

- a. **scapula**
- b. femur
- c. tibia
- d. mandible
- e. clavicle

10) Dolphins (mammals) and extinct ichthyosaurs (reptiles) both evolved flippers through modification of their forelimbs for life underwater. The common ancestor between dolphins and ichthyosaurs, however, did not have flippers. This indicates that the presence of flippers in these two species is due to \_\_\_\_\_. The common ancestor between both species did have forelimbs, which makes the presence of forelimbs (though modified) between dolphins and ichthyosaurs \_\_\_\_\_.

- a. genetic drift... natural selection
- b. **convergence... homologous**
- c. mutation... an ideosyncrasy
- d. homology... convergent
- e. macroevolution... polyandrous