QUIZ - THE EVOLUTION OF POPULATIONS

Part I — Multiple Choice

1. Which statement best describes biological evolution at the population level?

A. Individual organisms change their genes because they need to survive.
B. The inherited characteristics of a population change over generations.
C. All organisms in a population become identical over time.
D. An organism changes its behavior during its lifetime.

2. Which process introduces new alleles into a population by changing DNA?

A. Mutation
B. Natural selection
C. Genetic drift
D. Gene flow

3. A small group of individuals leaves a large population and starts a new population on an island. The new population has allele frequencies that differ from the original population because the founders were not genetically representative. Which process is this?

A. Bottleneck effect
B. Founder effect
C. Directional selection
D. Gene flow

4. Which situation is the clearest example of genetic drift?

A. A drought randomly kills many individuals in a population, leaving survivors with different allele frequencies.
B. Birds with larger beaks obtain more food and produce more offspring.
C. New individuals migrate into a population and reproduce.
D. A DNA change produces a new allele.

5. A population contains individuals with different inherited traits. Over many generations, individuals with one trait consistently leave more offspring than individuals with another trait. What is the most likely result?

A. The advantageous allele may become more common.
B. All alleles will immediately become equally common.
C. The population will stop having mutations.
D. Every individual will develop the advantageous trait during its lifetime.

6. Which statement about genetic variation is most accurate?

A. Genetic variation can result from mutation and recombination.
B. Genetic variation prevents populations from evolving.
C. Genetic variation only occurs when organisms intentionally change their DNA.
D. Every population has exactly the same amount of genetic variation.

7. Which condition is required for natural selection to produce evolutionary change?

A. All individuals must have identical traits.
B. Some heritable variation must affect reproductive success.
C. Every mutation must be beneficial.
D. Individuals must consciously choose advantageous traits.

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Part II — Multiple Answer

Directions: Select ALL answers that are correct.

8. Which processes can change allele frequencies in a population?

A. Natural selection
B. Genetic drift
C. Gene flow
D. An organism growing taller during its lifetime

Part III — True or False

Directions: Write **T** or **F**

9. Natural selection acts on individuals, but evolutionary change is measured as changes in inherited traits or allele frequencies within populations over generations.

Answer: _____

10. Gene flow generally occurs when individuals or reproductive cells move between populations and contribute alleles to the receiving population.

Answer: _____

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