

FRONT

Unit 8: Evolution Practice Test

- Structures that serve little or no purpose in the organism being considered, but are homologous to important structures in other organisms, are referred to as
 - analogous
 - mutations
 - vestigial
 - convergent
- The wings of a dragon fly, bird, seal, and penguin all share a similar function but differ structurally due to environmental pressures as opposed to a common ancestor, this type of structure is known as
 - convergent
 - analogous
 - homologous
 - vestigial
- Mammalian appendages with similar bone structures can be used for flying, swimming, running, or grasping. These are examples of _____ structures.
 - vestigial
 - embryonic
 - convergent
 - homologous
- Assume that it is possible to remove continuous cores of rock from the Earth that are 3000 feet long and contain fossils. The theory of evolution by natural selection would predict what about the fossils found in such cores, as they are examined from top to bottom?
 - Lower fossils are more similar to living species than higher fossils
 - The number of fossils decreases from top to bottom but the number of species increases
 - Fossil species remain constant from top to bottom
 - Higher fossils are more similar to living species than lower fossils
- Which of the following statements about the genetic basis of evolution is TRUE?
 - All marathon runners necessarily possess good genes for running because their bodies are in such good physical condition.
 - Exercise can have a beneficial effect on an individual's genes.
 - Any physical alterations made to a person's body during their lifetime will not affect their genetic makeup.
 - Cutting the tails off mice for 100 generations and allowing them to interbreed will result in a population of mice with genes for short tails.
- If the weather in Virginia changed so dramatically that there is snow on the ground most of the year, what would occur in the local squirrel population?
 - The weather change would cause a mutation that causes their fur to be white, resulting in white squirrels that survive and reproduce better than gray squirrels.
 - If a mutation occurred that caused white fur to develop, such white squirrels would likely survive and reproduce better than gray squirrels.
 - Evolution would produce white squirrels, because white squirrels would survive and reproduce better than squirrels of any other color.
 - Natural selection would cause a new gene to appear in the population, resulting in squirrels growing white fur when there is snow on the ground and growing gray fur at other times.

7. Which of the following statements was **NOT** one of Darwin's assumptions in his theory of natural selection?
- A) There are more offspring produced in each generation than can possibly survive to adulthood.
 - B) Individuals in populations tend to vary in specific traits.
 - C) Certain traits of parents are usually passed along to their offspring.
 - D) Organisms usually have two copies of each gene for each trait.
8. Which of the following is **NOT** capable of evolving?
- A) a population of fruit flies
 - B) a biology professor
 - C) a population of cats in a city
 - D) a group of plants of the same species that reproduces asexually
9. Evolution can be defined as
- A) a change in the genetic makeup of a population over time.
 - B) a change in phenotype of an individual over his or her lifetime.
 - C) a change in the genetic makeup of an organism over time.
 - D) an individual changing into another species.
10. Antibiotic resistance is an example of _____ in bacteria.
- A) genetic drift
 - B) assortative mating
 - C) natural selection
 - D) an equilibrium population
11. Mutations are important because they
- A) provide variation that can result in evolutionary change.
 - B) occur in response to environmental demands.
 - C) are always beneficial in the individuals affected by them.
 - D) usually provide an individual with increased reproductive rates.
12. Suppose a small population of deer is introduced to an island. All the original males have 6-10 points on their antlers, and the average male has 8 points. After several generations, if most males have antlers with 10 points and no males have 6 points, this illustrates _____ selection.
- A) directional
 - B) disruptive
 - C) stabilizing
 - D) artificial
13. In a certain species of salmon, some adult males are extremely large whereas other adult males are very small, compared to the females. There are no intermediate-sized adult males in the population. This is probably due to
- A) directional selection.
 - B) disruptive selection.
 - C) stabilizing selection.
 - D) artificial selection.

Practice Test

14. In one butterfly species, the colors of individuals can range from white to black, with many shades of gray in between. If the butterflies in a mountain population become more and more similar in color over several generations (for example, if most butterflies are the same shade of gray), what kind of evolutionary force is likely acting on the population?
- A) directional selection
 - B) disruptive selection
 - C) stabilizing selection
 - D) artificial selection
15. Which trait is the **BEST** example of an adaptation?
- A) a new mutation that confers Tay-Sachs disease in humans
 - B) a mutation resulting in weak branches in a species of tree that lives in windy regions
 - C) a longer tongue in an insect-eating mammal that feeds on insects that live in shallow burrows
 - D) a mutation resulting in a heat-resistant enzyme in a bacterium living in a hot spring
16. Two species of garter snakes live in the same geographic area. One mainly lives in water and the other mainly on land, so that they rarely encounter each other and do not interbreed. This is an example of what type of genetic isolation?
- A) Geographic/ecological
 - B) temporal
 - C) behavioral
 - D) directional
17. When a species invades a new habitat and evolves rapidly into several new species to better exploit new resources, what has occurred?
- A) phyletic speciation
 - B) divergent speciation
 - C) stabilizing selection
 - D) adaptive radiation
18. What compounds were used in the experiment by Stanley Miller to simulate the early atmosphere of Earth?
- A) oxygen, ammonia, hydrogen, and methane
 - B) ammonia, hydrogen, and carbon dioxide
 - C) water, oxygen, hydrogen, and methane
 - D) water, ammonia, hydrogen, and methane
19. Who first demonstrated prebiotic evolution in the laboratory?
- A) Stanley Miller & Harold Urey
 - B) Francesco Redi & Charles Darwin
 - C) Louis Pasteur & Stanley Miller
 - D) Harold Urey & John B. S. Haldane
20. Aerobic metabolism is an advantage over anaerobic metabolism because
- A) the destructive chemical action of oxygen is utilized to generate energy.
 - B) aerobic respiration can be performed whether oxygen is present or not.
 - C) aerobic respiration produces more energy than anaerobic respiration.
 - D) both A and C

21. _____ may have evolved from aerobic bacteria and _____ may have evolved from photosynthetic cyanobacteria that were engulfed by predatory prokaryotic cells.
- A) Chloroplasts; mitochondria
 - B) Mitochondria; nuclei
 - C) Mitochondria; chloroplasts
 - D) Cell membranes; chloroplasts
22. Throughout the history of systematics, what characteristic was most commonly used for determining species relationships?
- A) DNA sequence similarity
 - B) capability of interbreeding
 - C) geographic proximity
 - D) anatomical similarity
23. _____ is a term that refers to the "evolutionary history" of an organism.
- A) phylogeny
 - B) systematics
 - C) biological classification
 - D) All of the above.
24. List the 4 evidences of evolution and describe how it shows support.
- a.
 - b.
 - c.
 - d.
25. Describe **natural selection** in regards to its role within the **evolutionary process**.
- Include a scenario to help clarify
 - Additionally include the following terms: **overpopulation, competition, variation, survival**