Unit 8-Evolution Test Review

Name: Answer key **Date:** _____ **Test #:** _____

1. Define the following terms:
   a. Spontaneous Generation: the idea that living organisms come from nonliving mater
   b. Adaptation: a population becomes better suited to its environment
   c. Homologous Structure: anatomical structures in one species that compared to other structures in another species come from a commo ancesto
   d. Vestigial Structures: a structure that is no longer useful even though it is still present
      i. Example: hip bones in whales or boa constrictors
   e. Divergent evolution: Descendants of a single ancestor diversify into different species
      i. Example: Darwin's finches
   f. Convergent Evolution: Process by which different species evolve similar traits
      i. Example: Shark-fish, dolphin-mammal
   g. Species: organisms of the same kind that can interbreed & reproduce
   h. Population: individuals of the SAME SPECIES than live in the same plac
   i. Punctuated Equilibrium: pattern of a long stable period interrupted by a brief pattern of more rapid change
   j. Scientific Theory: a generally accepted and well-tested scientific explanation, can be changed with new evidence
   k. Artificial Selection: selective breeding of organisms (by humans) for specific desirable characteristics
      i. Example: Seedless watermelons, grapples, dog breeds
   l. Evolution: changes that occur in populations of organisms over time
   m. Fitness: measure of the # of viable offspring produced
   n. Variation: genetic differences
   o. Fossil: the remains or traces of organisms that lived in the past
      i. Examples of fossils: shells, old bones, dead organisms, insects in tree sap
2. Briefly describe the significance of each of the following scientists (include the name of their idea):
   a. Louis Pasteur: disproved spontaneous generation of microorganisms (He used curved neck flasks)
   b. Francesco Redi: disproved spontaneous generation using jars, meat, flies
      i. How did Redi test his hypothesis? He placed meat in various containers and left some open and covered some with cloth
   c. Lazzaro Spallanzani: Italian scientist that tried to disprove Needham
   d. Charles Lyell: Proposed that geological forces have shaped Earth (uniformitarianis
   e. George Cuvier: Studied fossils in sedimentary rock strata (catastrophism)
   f. James Hutton: Proposed that life on Earth was shaped by geological forces (gradu
   g. Jean Baptiste Lamarck: Proposed that organisms could acquire traits (inheritance of acquired characteris
   h. Thomas Malthus: growing populations run out of resources (struggle for Existence)
   i. Charles Darwin: British scientist whose studies of fossils and different species support the theory of evolution
      i. Where did he do a majority of his observations? Galapagos Islands

ii. What are Darwin's two theories? ① Descent with Modification ② Natural selection

3. Scientists think that the first types of cells were similar to bacteria. These cells were considered anaerobic and photosynthetic.
4. Describe the three types of natural selection and draw a graph for each. Be able to identify examples of each type of natural selection.
   a. Stabilizing Selection: A type of natural selection that favors the AVERAGE individuals in a population
   b. Directional Selection: A type of natural selection that favors those individuals with one of the extreme variations in traits within a population
   c. Disruptive Selection: A type of natural selection that favors BOTH of the extreme variations
5. What is Natural Selection? Process by which organisms best suited to the environment survive, reproduce, and pass their genes to the next generation
   a. What are the correct steps of natural selection? Must be listed in the correct order.
      i. Struggle for resources
      ii. Stronger survive
      iii. Reproduce
      iv. Pass on traits
6. What happens when natural resources are limited? competition for resources
7. Darwin studied finches on the Galapagos Island.
   a. What is this an example of? Geographic Isolation / Divergent Evolution
   b. What drove the adaptation of different shaped beaks? Food
8. Briefly describe the three types of isolation. Provide an example.
   a. Geographic Isolation: separation of a population into 2 populations that have no contact with each other
      i. Example: Finches, Tortoises, Wrasse fish
   b. Reproductive Isolation: Formerly interbreeding organisms that can no longer mate and produce fertile offspring
      i. Example: Lack of fit between sexual organs
   c. Behavioral Isolation: Compatible mating seasons fall at different times of the year
      i. Example: Wood Frog, Bowerbird
9. What are the three types of mutations? Deletion, Insertion, Substitution