

Name: _____

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36. A farmer uses triazine herbicide to control pigweed in his field. For the first few years, the triazine works well and almost all the pigweed dies; but after several years, the farmer sees more and more pigweed. Which of these explanations best describes this observation?
- The herbicide company lost its triazine formula and started selling poor-quality triazine.
 - Natural selection caused the pigweed to mutate, creating a new triazine-resistant species.
 - Triazine-resistant pigweed has less-efficient photosynthesis metabolism.
 - Only triazine-resistant weeds survived and reproduced, so each year more pigweed was triazine-resistant.**
37. Which of the following is the best modern definition of evolution?
- descent without modification
 - change in genetic traits in a population over time**
 - survival of the fittest
 - inheritance of acquired characters
38. After the drought of 1977, researchers hypothesized that on Daphne Major (an island in the Galapagos islands), medium ground finches with large, deep beaks survived better than those with smaller beaks did because they could more easily crack and eat the tough *Tribulus cistoides* fruits (one of the only types of seed that was available during the drought). If this hypothesis is true, what would you expect to observe if a population of these medium ground finches colonized a nearby island where *Tribulus cistoides* was the primary available food in all years?
- Evolution of yet larger, deeper beaks over time**
 - Evolution of smaller, pointier beaks over time
 - Random fluctuations in beak size and shape
 - No change in beak size and shape
39. Facilitated diffusion is specific. This means
- a specific protein will transport certain polar or charged molecules but not others.**
 - that only one specific integral protein per membrane is involved in facilitated diffusion.
 - that the energy molecule ATP is specifically required for transport.
 - only specific hydrophobic molecules can be transported.
40. When phospholipids are put into an aqueous solution, they form lipid bilayers spontaneously. What explains why this reaction is spontaneous?
- The process is endergonic.
 - The process is exergonic.**
 - The process leads to a huge decrease in entropy and no change in potential energy.
 - The process is endothermic.
41. Consider the following reaction at equilibrium: $\text{CO}_2 + \text{H}_2\text{O} \leftrightarrow \text{H}_2\text{CO}_3$. What would be the effect of adding additional H_2CO_3 ?
- It would drive the equilibrium dynamics to the right.
 - It would drive the equilibrium dynamics to the left.**
 - Nothing would happen, because the reactants and products are in equilibrium.
 - The amounts of CO_2 and H_2O would decrease.