**Evolution Test**

**Multiple Choice**

*Identify the choice that best completes the statement or answers the question.*

\_\_\_\_ 1. How is the scientific theory of evolution supported by the comparison of the skulls and skeletons of modern humans and extinct hominids?

|  |  |
| --- | --- |
| a. | By making the hip, spine, and skull comparisons, the age of the different hominid specimens can be determined.  |
| b. | Comparison of the skull and skeletons provides evidence that humans and different hominid species interacted.  |
| c. | Similarity in skulls shapes, hands, and hips between hominids and humans suppoers a common ancestory.  |
| d. | Skull and skeleton comparisons can explain why hominids were inferior and became extinct while humans evolved.  |

\_\_\_\_ 2. 

|  |  |
| --- | --- |
| a. | Humans and chickens cannot be traced to a common ancestor.  |
| b. | Human and dogfish are the most closely related species.  |
| c. | Humans and pigs are related to a common ancestor.  |
| d. | Humans are not related to any of the other organisms.  |

\_\_\_\_ 3. 

|  |  |
| --- | --- |
| a. | Cross pollination across the islands without the lava flow caused the percentage of orange flowers to dramatically change on these islands.  |
| b. | The hibiscus plants on the island that had the lava flow suffered from a higher mutation rate than plants on other islangs, causing a difference in the populations.  |
| c. | The limited population size after the lava flow resulted in a limited gene pool, causing genetic drift in future generations of hibiscus plants on the island.  |
| d. | Orange flowering hibiscus plants were better adapted to survive lava flows, so white hibiscus were naturally selected out of the population on the island.  |

\_\_\_\_ 4. Scientists look at evidence to determine possible evolutionary relationships and

mechanisms. Which of the following provides strong evidence for evolution?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | the fossil record | c. | phylogenetic trees |
| b. | forensic biology | d. | works of philosophy |

\_\_\_\_ 5. 

The picture ablove shows similarities among the forelimbs of three mammals. These similarities provide evidence for which of the following hypotheses?

|  |  |
| --- | --- |
| a. | Legs and wings may have evolved from flippers |
| b. | All mammals have evolved from an ancestor that was a bat. |
| c. | A cat’s leg, a dolphin’s flipper, and a bat’s wing have identical functions. |
| d. | Cats, dolphins, and bats may have had the same ancestor millions of years ago. |

\_\_\_\_ 6. Scientists look at evidence to determine possible evolutionary relationships and

mechanisms. Which of the following provides strong evidence for evolution?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | the fossil record | c. | phylogenetic trees |
| b. | forensic biology | d. | works of philosophy |

\_\_\_\_ 7. How does drug resistance develop in bacteria?

|  |  |
| --- | --- |
| a. | Unsanitary conditions allow all kinds of bacteria to breed, including those thatare antibiotic resistant |
| b. | In the bloodstream, different species of bacteria exchange genes and become resistant to antibiotics. |
| c. | Mutations in some bacterial genes make the bacteria stronger and better able to defeat the body’s immune system |
| d. | In the presence of an antibiotic, bacteria with genes that make them resistant survive and eventually take over the population |

\_\_\_\_ 8. Biologists look at how organisms are related and when they first appeared on Earth.

Which of the following is true about the organisms that live on Earth today?

|  |  |
| --- | --- |
| a. | All organisms that have ever lived on Earth can still be found alive today. |
| b. | Some of the organisms alive today have been around for 4.6 billion years. |
| c. | The organisms alive today are the same as the ones that are found in fossils |
| d. | The organisms alive today evolved from organisms that previously lived on Earth. |

\_\_\_\_ 9. 

|  |  |  |  |
| --- | --- | --- | --- |
| a. | class | c. | family |
| b. | domain | d. | species |

\_\_\_\_ 10. Which series represents the correct order of levels of classification, from broadest to

narrowest?

|  |  |
| --- | --- |
| a. | domain, kingdom, phylum, order, class, family, genus, species |
| b. | domain, kingdom, phylum, class, order, family, genus, species |
| c. | kingdom, phylum, domain, order, class, family, genus, species |
| d. | species, genus, family, class, order, phylum, kingdom, domain |

\_\_\_\_ 11. 

|  |  |
| --- | --- |
| a. | All are carnivores. |
| b. | All have backbones. |
| c. | All spend their entire lives on land. |
| d. | All maintain a constant body temperature. |

\_\_\_\_ 12. 

|  |  |
| --- | --- |
| a. | The plant is deciduous. |
| b. | The plant is a *Pinus rigida*. |
| c. | The plant is an Eastern white pine |
| d. | The plant cannot be identified from the information provided. |

\_\_\_\_ 13. Scientists find a new organism that is composed of many cells, gets its nutrition from

decaying organisms, and has cell walls. To what kingdom would the new organism

belong?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Animalia | c. | Eubacteria |
| b. | Fungi | d. | Protista |

\_\_\_\_ 14. Which of the following properties could be used to distinguish between an organism

in the domain Bacteria and one in the domain Eukarya?

|  |  |
| --- | --- |
| a. | contains membrane-bound organelles |
| b. | uses energy to carry out multiple functions |
| c. | uses simple mechanical motion to move around |
| d. | is composed of organic chemicals such as amino acids |

\_\_\_\_ 15. 

|  |  |
| --- | --- |
| a. | Archaea cause disease, but bacteria do not |
| b. | Bacteria have a nucleus, but archaea do not. |
| c. | Archaea are single-celled, but bacteria often have more than one cell. |
| d. | Archaea and bacteria exhibit differences in cell walls, cell membranes, and genestructure. |

\_\_\_\_ 16. 

|  |  |
| --- | --- |
| a. | There was no lightning in Earths early atmosphere. |
| b. | Ammonia and methane were not in the early atmosphere |
| c. | The chemicals used in the experiment were contaminated |
| d. | Organic molecules already existed before the atmosphere formed. |

\_\_\_\_ 17. How do hominids differ from other primates?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | They are bipedal | c. | They have grasping hands. |
| b. | They have long arms. | d. | They have binocular vision |

\_\_\_\_ 18. 

|  |  |  |  |
| --- | --- | --- | --- |
| a. | division | c. | order |
| b. | kingdom | d. | phylum |

\_\_\_\_ 19. What advantage did the development of bipedalism **most likely** confer to early

hominids?

|  |  |
| --- | --- |
| a. | It allowed them to see with binocular vision. |
| b. | It allowed them to evolve an opposable thumb. |
| c. | It allowed them to evolve a complex social structure. |
| d. | It allowed them to move and hold objects at the same time. |

\_\_\_\_ 20. A primate is a member of the mammalian order Primates, which have grasping

hands and feet and forward orientation of the eyes. Which of the following is

**not** a primate?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | hominid | c. | shrew |
| b. | monkey | d. | tarsier |

\_\_\_\_ 21. A primate is a member of the mammalian order Primates, which have grasping

hands and feet and forward orientation of the eyes. Which of the following is

**not** a primate?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | hominid | c. | shrew |
| b. | monkey | d. | tarsier |

\_\_\_\_ 22. Darwin developed his idea of evolution by natural selection based in part on

observations he made in the Galpagos Islands. Which of the following ideas

influenced Darwin? ’s development of evolutionary theory?

|  |  |
| --- | --- |
| a. | the discovery that genes are made of a biochemical called DNA |
| b. | the idea formulated by ancient Greek philosophers that all substances are made of atoms |
| c. | the development of the cell theory based on ideas from Mattias Schleiden, Theodor Schwann, and Rudolph Virchow |
| d. | the observation by British economist Thomas Malthus that the human population could not continue growing faster than the food supply |

\_\_\_\_ 23. Evolution is a change in the characteristics of a population from one generation to

the next. Which of the following is the correct order for the steps of evolution by

natural selection?

|  |  |
| --- | --- |
| a. | overproduction —selection —adaptation —variation |
| b. | overproduction —selection —adaptatio? —evolution |
| c. | overproduction — variation —selection —adaptation |
| d. | selection — variation —adaptation —overproduction |

\_\_\_\_ 24. Speciation is the formation of new species as a result of evolution by natural

selection. What effect could separation of populations have on speciation?

|  |  |
| --- | --- |
| a. | One half of the species will go extinct if the population is separated. |
| b. | The separated populations will always evolve into at least two different species |
| c. | If the environments differ enough, the separated populations may evolvedifferently. |
| d. | By separating, the populations will no longer be able to interbreed and will die off. |

\_\_\_\_ 25. 

|  |  |
| --- | --- |
| a. | the color of their beaks |
| b. | the types of seeds available |
| c. | whether the populations interbreed |
| d. | the nutritional content of the seeds they eat |

\_\_\_\_ 26. Which of the following mutations would be **most likely** to improve the chances that

an organism would survive and reproduce?

|  |  |
| --- | --- |
| a. | a stronger scent that makes an animal easier to find |
| b. | a weaker scent that makes a flower less attractive to bees |
| c. | weaker eyesight that makes an animal less likely to find prey |
| d. | stronger leg muscles that allow an animal to jump away from danger |

\_\_\_\_ 27. Gene flow is one force that can cause evolutionary change. Which example **best**

illustrates gene flow?

|  |  |
| --- | --- |
| a. | A flock of migrating geese enters into the territory of another flock and begins interbreeding. |
| b. | A flock of geese becomes isolated on an island, and over time, the populationbegins to exhibit new characteristics. |
| c. | Some individuals in a flock of geese have genes that are more advantageous, and over time, the numbers of these geese increase. |
| d. | A flock of migrating geese loses its way to its wintering grounds, leaving other geese without competition for resources and enabling those geese to produce more offspring |

\_\_\_\_ 28. The cladogram above shows the evolution of the original tufted-ear squirrel

population into two separate species. Which of the following factors would make the

evolution of the squirrel population into separate species less likely?

|  |  |
| --- | --- |
| a. | Different predators live on the North and South Rims of the canyon. |
| b. | A few of the squirrels manage to cross the canyon and breed with squirrels on the other side. |
| c. | Different trees grow on the North and South Rims of the canyon because ofchanges in the water table |
| d. | A disease attacks one population of squirrels and kills most of them. Thesquirrels on the other side of the canyon are not affected |

\_\_\_\_ 29. Charles Darwin published his theory of evolution in 1859. In what way does modern

evolutionary theory differ from the theory as proposed by Darwin?

|  |  |
| --- | --- |
| a. | Darwin inferred that individuals can evolve, but modern genetic science has shown that this is not true. |
| b. | Darwin inferred that individuals do not evolve, but modern genetic science has shown that this is not true. |
| c. | Modern science has disproved most of Darwin’s original theory of evolution,because Darwin knew nothing about genes and their role in heredity. |
| d. | Genetic studies have shown that gene expression and other factors operate along with natural selection, but most of Darwin’s theory has been supported by modern science. |