\_\_\_\_\_1. The diagram below shows the evolutionary relationships among animals with common ancestors.



According to this diagram, at least how many homologous structures do turkeys and crocodiles have?

A. one B. two C. four D. five

\_\_\_\_\_ 2. A cat associates the sound of a can opener to the act of being fed. Which behavior is occurring?

A. imprinting B. habituation C. classical conditioning D. trial-and-error learning

\_\_\_\_\_ 3. Which best describes an example of mutualism?

A. Mistletoe lives in the branches of tall trees, absorbing nutrients from the tree branch.

B. A leech attaches to the side of a fish, where it sucks blood and cell fluids from the fish.

C. A clown fish hides in the tentacles of a sea anemone, drawing larger fish to the anemone.

D. A barnacle attaches to the sides of a whale, filtering nourishment as the whale swims along.

\_\_\_\_\_ 4. Which is a correct statement about the flow of energy through an ecosystem?

A. Carnivores are present to feed on producers.

B. Herbivores are autotrophic through photosynthesis.

C. Producers convert radiant energy into chemical energy.

D. Consumers convert radiant energy into chemical energy.

\_\_\_\_\_ 5. Which subunits make up a nucleotide of DNA?

A. ribose, phosphate, and thymine B. cytosine, ribose, and phosphate

C. deoxyribose, phosphate, and uracil D. phosphate, deoxyribose, and adenine

\_\_\_\_\_ 6. The diagram below is an mRNA codon chart.



A segment of a DNA strand has the base sequence of TAC GCA TGA CTA. Which amino acids would be produced from this DNA segment?

A. Serine – Histidine – Asparagine – Glycine

B. Asparagine – Proline – Isoleucine – Valine

C. Methionine – Arginine – Threonine – Aspartic Acid

D. Arginine – Glutamine – Methionine

\_\_\_\_\_ 7. Which process ends with the release of a newly synthesized protein into cellular cytoplasm?

A. translation B. transcription

C. DNA synthesis D. DNA replication

\_\_\_\_\_ 8. The Human Genome Project began in 1988 as a way for scientists to identify and understand the DNA sequence in humans. What is one potential benefit of the Human Genome Project?

A. It explains relationships among people.

B. It helps identify genes responsible for disease.

C. It assists with classifying animals related to humans.

D. It determines which genes are recessive and dominant.

\_\_\_\_\_ 9. Enzymatic activity can be affected by many factors. Which factor would have the least effect on the rate of enzymatic activity?

A. the pH of the substrate B. the temperature of the substrate

C. the concentration of oxygen present D. the concentration of the enzyme present

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\_\_\_\_\_ 10. A man who is red-green colorblind marries a woman with normal vision whose father is colorblind. Which represents the probability that they will have a colorblind son?

A. 0% B. 25% C. 50% D. 100%

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\_\_\_\_\_ 11. A man is heterozygous for blood type A, and his wife is heterozygous for blood type B. Which blood types are possible in their offspring?

A. A and B B. A and AB

C. B, AB, and O D. A, B, AB, and O

\_\_\_\_\_ 12. Which demonstrates an example of natural selection?

A. A bear ravages a campsite in search of food.

B. A bird builds a nest in preparation for egg laying.

C. A mouse scampers under a shed to escape from a circling owl.

D. A lion attacks a herd of antelope, catching the weakest member.

\_\_\_\_\_ 13. When the antibiotic penicillin was first discovered, it was considered to be a wonder drug against bacterial infections; however, today penicillin is not as effective as it once was. Which best explains this?

A. Many bacteria have developed resistance to the antibiotic.

B. Bacteria reproduce faster than the antibiotic can kill them.

C. The strength of the antibiotic has been reduced over the years.

D. Many individuals have developed allergic reactions to the antibiotic.

\_\_\_\_\_ 14. Which do scientists believe were the first type of cells to appear?

A. aerobic and eukaryotic B. aerobic and prokaryotic

C. anaerobic and eukaryotic D. anaerobic and prokaryotic

\_\_\_\_\_ 15. Which human trait is inherited through polygenic inheritance?

A. dimples B. height

C. blood type D. red-green color vision

\_\_\_\_\_ 16. Which pair is a correct match of an organic molecule with its subunits?

A. proteins-amino acids B. nucleic acids-glycerol

C. lipids-monosaccharides D. carbohydrates-nucleotides

\_\_\_\_\_ 17. Which describes the structure of enzymes?

A. carbohydrates with lipid tails

B. nucleic acids with an attached ribose compound

C. proteins composed of long chains of amino acids

D. a complex carbohydrate composed of two simple carbohydrates and a starch

\_\_\_\_\_ 18. Which is the best explanation of the way enzymes speed up chemical reactions?

A. They raise activation energy.

B. They lower activation energy.

C. They maintain activation energy.

D. They have no effect on activation energy.

\_\_\_\_\_ 19. Which is a correct statement about prokaryotic and eukaryotic cells?

A. DNA is only found in eukaryotic cells.

B. RNA is only found in prokaryotic cells.

C. Circular RNA strands called plasmids are only found in eukaryotic cells.

D. Circular DNA strands called plasmids are only found in prokaryotic cells.

\_\_\_\_\_ 20. How are diffusion and osmosis similar?

A. They both involve enzymes.

B. They are both processes that require ATP.

C. They are both involved in passive transport.

D. They both involve the movement of a variety of molecules.