

Warm-Up 10-22-14 Chemistry of Life

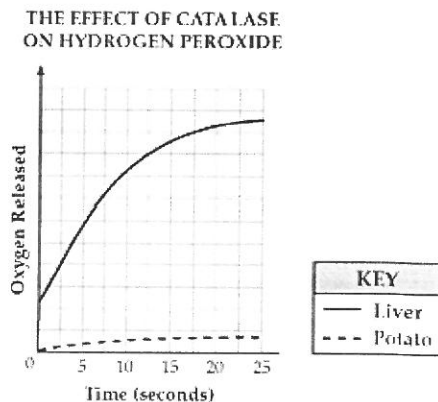
Multiple Choice: *Identify the choice that best completes the statement or answers the question.*

Use the information and the graph below to answer the following question.

Catalase is an enzyme found in plant and animal cells. Hydrogen peroxide is a harmful substance found in cells. Catalase causes hydrogen peroxide to break down into water and oxygen.

A student conducted an experiment to determine whether plant and animal cells have the same amount of catalase. She used liver and potato tissues in the experiment. The student followed the procedures below.

1. Label two identical test tubes, 1 and 2.
2. Pour 10 milliliters of hydrogen peroxide solution (1% concentration) into each test tube.
3. Add a small piece of liver tissue to Test Tube 1.
4. Add a small piece of potato tissue to Test Tube 2.
5. Collect the oxygen released from each test tube for 25 seconds.
6. Measure and record the volume of oxygen for each test tube. The graph below shows the results from the experiment.

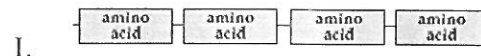
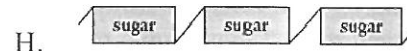
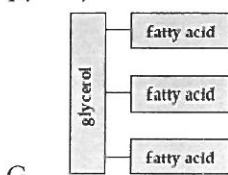
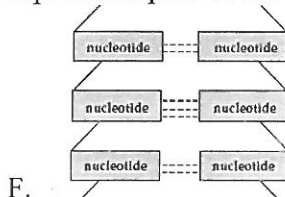


- _____ 1. What type of molecule is catalase?
A. a protein B. a lipid C. a nucleic acid D. a carbohydrate
- _____ 2. Based on the students' results, catalase works best at a pH of
F. 4 G. 7 H. 10 I. 1
- _____ 3. What molecules control the reaction rate of photosynthesis?
A. sugars B. nucleic acids C. fatty acids D. enzymes
- _____ 4. **Which of these are the repeating units that form a DNA molecule?**
F. fatty acids G. chromosomes H. amino acids I. nucleotides
- _____ 5. Glucose is a building block of carbohydrates. Which of these best describes glucose?
A. protein B. monosaccharide C. nucleotide D. lipid

- _____ 6. In the early 1900s, many children had a disease called rickets. Research showed that the children had a deficiency of a vitamin that is necessary for the proper formation of bones. Which of these vitamins was lacking in the diets of these children?
 F. vitamin C G. vitamin A H. vitamin D I. vitamin K

- _____ 7. Which statement describes the major role of lipids within a cell?
 A. They cause DNA to replicate.
 B. They move RNA in the cytoplasm
 C. They catalyze chemical reactions in the cell cytoplasm.
 D. They are the main structural components of membranes.

- _____ 8. Amylase is an enzyme that allows the human body to digest starch. Which of these diagrams best represents part of the structure of amylase -



- _____ 9. Most carbohydrates in the human body are -
 A. not easily absorbed into the bloodstream
 B. consumed as a source of energy
 C. used as building blocks for proteins
 D. used as catalysts for reactions in cells

- _____ 10. Which of these is an example of homeostasis in a multicellular organism?
 F. regulating body temperature
 G. inheriting a trait
 H. building a nest
 I. growing larger and stronger

- _____ 11. A researcher is testing the effect of acid rain on living organisms. She takes a tissue sample and places it in acid rainwater, which decreases its pH. As the pH decreases, what will most likely happen to the enzyme reaction rates in the cells of this tissue?
 A. They will increase.
 B. They will decrease.
 C. They will increase and level off
 D. They will stay the same.

- _____ 12. Some adult insects are unable to swim but are able to walk on top of water. What characteristic of water enables these insects to walk on top of water?
 F. surface tension
 G. solvent properties
 H. pH
 I. atomic bonds