

Name _____ Period _____ Date _____

WARM-UP: HSA PREP (BIOCHEMISTRY)

Circle the letter of the BEST answer.

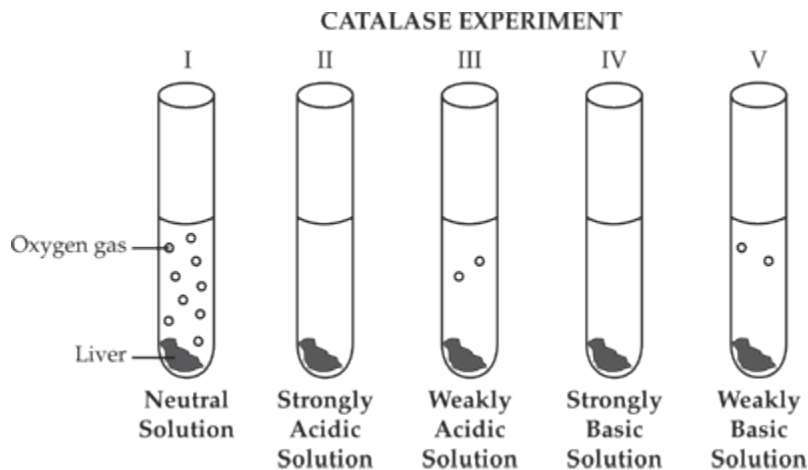
1. In the early 1900s, many children had a disease called rickets. Research showed that the children had a deficiency of a vitamin that is necessary for the proper formation of bones.

Which of these vitamins was lacking in the diets of these children?

- A. vitamin A
B. vitamin C
C. vitamin D
D. vitamin K

2. Use the information and the diagram below to answer the items 2 and 3.

Catalase is an enzyme found in the tissues of plants and animals, including humans. Catalase helps prevent a toxic buildup of hydrogen peroxide in cells by breaking it down into water and oxygen gas. Several students conduct an experiment to test the effects of pH on the activity of catalase. Each test tube contains a solution of hydrogen peroxide and water at various pH levels. The liver tissue is a source of catalase. The diagram below represents the results of their experiment.



Based on the students' results, catalase works best at a pH of

- A. 1
B. 4
C. 7
D. 10

3. Which of the following are the building blocks of catalase?

- A. monosaccharides
B. nucleic acids
C. vitamins
D. amino acids

4. Use the information below to answer the following item.

The water quality of the Chesapeake Bay is measured by the Chesapeake Bay Water Quality Monitoring Program. Scientists measure the salinity, temperature, pH, and oxygen levels to help determine the health of the Bay. Healthy water also contains appropriate amounts of nutrients. Monitoring water quality helps communities make decisions about the Bay.

Measuring oxygen levels of the Bay provides scientists with information about which process?

- A. mitosis
- B. meiosis
- C. chemosynthesis
- D. photosynthesis

5. Both DNA and RNA

- A. contain phosphate
- B. contain amino acids
- C. are a double helix
- D. are inorganic

6. Use the information below to answer the following item.

In an ocean environment, marine life is most abundant in the euphotic zone. This zone extends from the surface waters to a depth of 200 meters, the deepest depth that sunlight can reach. It is in this range that phytoplankton capture energy from the sun. Although they are microscopic organisms, phytoplankton are the foundation that supports the marine food web.

Through which process do phytoplankton use energy from the sun to make their food?

- A. chemosynthesis
- B. photosynthesis
- C. evaporation
- D. respiration

7. Which of the following pairs of materials is required for a cell to carry on respiration?

- A. water and oxygen
- B. glucose and oxygen
- C. water and carbon dioxide
- D. glucose and carbon dioxide

8. All living things need nitrogen. The nitrogen gas in Earth's atmosphere must be changed into ammonia before most living things can use it. Which of these organisms can change nitrogen gas into ammonia?

- A. bacteria
- B. mold
- C. moss
- D. yeast

9. Water dissolves many substances. This occurs because water has

- A. surface tension
- B. polarity
- C. specific heat
- D. cohesion
- E.

10. In deep ocean trenches, bacteria produce organic materials from inorganic compounds through the process of

- A. respiration
- B. decomposition
- C. photosynthesis
- D. chemosynthesis

