

Standard 2 Objective 1 Describe the fundamental chemistry of living cells

14 Question(s)
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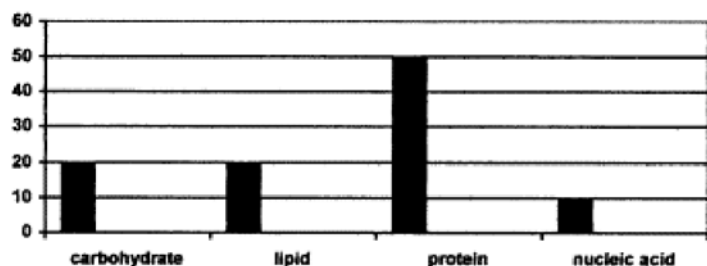
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- 1) The six elements that make up 99.9% of all living things include
 - A. C, K, O, N, Ca and S
 - B. C, P, S, H, O and N
 - C. C, P, K, I, O and N
 - D. N, O, P, H, S and T
- 2) Which chemical elements would you expect to find in abundance in a living cell?
 - A. hydrogen, neon, argon
 - B. carbon, oxygen, hydrogen
 - C. iron, magnesium, calcium
 - D. sodium, potassium, sulfur
- 3) Fats are important energy storage compounds because they:
 - A. readily breakdown to form glucose
 - B. provide immediate energy
 - C. contain more energy per gram than carbohydrates or proteins
 - D. are liquid at normal body temperatures
 - E. don't require nitrogen
- 4) What are the building blocks of protein molecules?
 - A. polymers
 - B. fatty acids
 - C. glucose molecules
 - D. amino acids
- 5) Which of the following describes the function of proteins?
 - A. energy formation and storage
 - B. energy used in muscles and reaction
 - C. structural use and enzyme formation
 - D. heredity and genetic code carriers
- 6) What is the most common food storage compound in plants?
 - A. glucose
 - B. starch
 - C. sucrose
 - D. cellulose
 - E. fat
- 7) The properties of water make it very valuable to living systems. Which of the following statements regarding water is not true?
 - A. it modifies temperature extremes
 - B. it makes up about 50% of your body
 - C. it is the greatest solvent in the world
 - D. it expands slightly when it freezes
 - E. it covers more than 75% of the earth's surface
- 8) Which of the following statements are true of enzymes?
 - A. they are lipids
 - B. they will react with most body chemicals
 - C. they can only be used once
 - D. they usually slow down reactions and prevent overheating of the cells
 - E. they usually speed up chemical reactions
- 9) Which characteristic of water allows it to support the weight of objects more dense than water?
 - A. capillary action
 - B. surface tension
 - C. specific heat

- D. evaporation
- E. adhesion

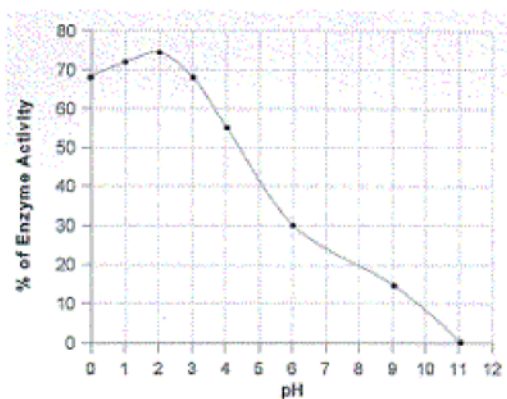
10) This chart shows the percentage amount of macromolecules found in a body tissue.



What tissue type would this cell be from?

- A. fat
- B. muscle
- C. bone
- D. blood

11) The enzyme graphed above will work best in



pH Scale

1 - 6 = Acid

7 = Neutral

8 - 14 =

Alkaline

- A. an alkaline medium
- B. an acid medium
- C. a neutral medium
- D. a carbohydrate medium

12) Until the early 1800s, many chemists thought organic compounds could only be created by natural processes within living things. In 1828, a German chemist was able to synthesize the organic compound urea, in the lab. Chemists soon realized that the principles governing the chemistry of non-living things could be applied to living things. Which of the following statements best describes this scenario?

- A. Science is a way of knowing by many people -- not just scientists.
- B. Science raises ethical issues for which science alone cannot provide solutions.
- C. Science conclusions are subject to revision in light of new evidence.
- D. Science does not have one correct scientific method to use to verify experiments.

13) Your mother wants to go on a high-protein, no-carbohydrate diet to lose ten pounds. She talks to you and asks what you think. You tell her she should look on the government website to find out about the functions of proteins and carbohydrates in the body before she goes on this diet. She tells you later carbohydrates help provide energy for the body and so she will not go on this diet. What does this scenario demonstrate?

- A. Knowledge about macromolecules is important for everyone, not just scientists.
- B. Knowledge about macromolecules is important only for the food industry researchers to know as they make new processed food.
- C. Knowledge about macromolecules is too difficult for everyone to understand and should be left only to scientists.
- D. Knowledge about macromolecules is unimportant, as long as people like the way they look.

14) Magnetic Resonance Imaging (MRI) works by affecting water molecules in the body. The nuclei of the hydrogen atoms in water are randomly oriented. MRI uses powerful magnets to align the nuclei and then uses radiowaves to create signals which are transformed by a computer into an image. MRI can image the soft tissues and organs since they are mostly made up of water. What does this demonstrate?

- A. Science provides information which is generally NOT helpful to the health of humans.

- B. Science affects humans by improving technology to help diagnose diseases and disorders.
- C. Technology is too expensive and should not be used in health care because of its tremendous cost.
- D. People are afraid of technology and don't want to know what is really wrong with them.

