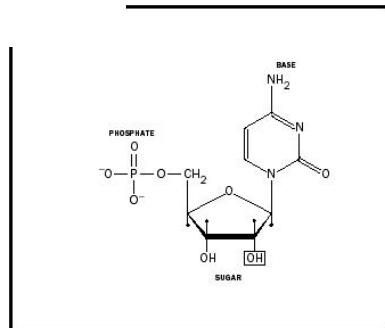
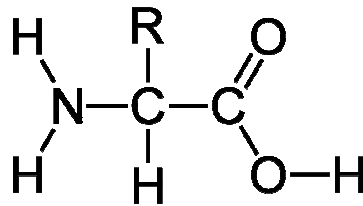
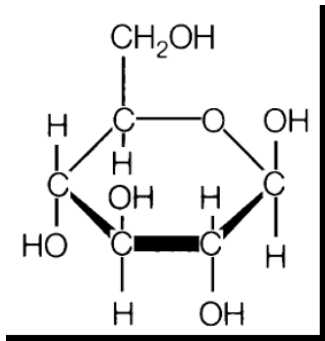


Practice Exam 1, Biology 102

Sample written questions:

1. Describe the difference between atoms and molecules.
2. Duncan is an organic chemist. When he says he is working with organic molecules, what does he mean by "organic?"
3. Below are illustrations of three monomers that you should be familiar with by now. Write the general names of these monomers below the pictures: amino acid, fatty acid, nucleotide, or simple sugar.



Sample multiple-choice questions

1. Polar covalent bonds, such as the bond between oxygen and hydrogen in a water molecule, are formed when:
 - a. charged atoms from two molecules are attracted to each other.
 - b. more than one pair of electrons is shared.
 - c. ions are formed.
 - d. electrons are shared unequally between atoms.
2. In humans, the first phase of cavity formation involves certain bacteria in the mouth breaking apart sucrose, a disaccharide, into glucose and fructose. What kind of reaction do the bacteria carry out to do this?
 - a. dehydration synthesis
 - b. decomposition
 - c. hydrolysis
 - d. covalent bonding
3. Melvin, ace biology student, designs a science project for Ms. Fishhawk's biology class. He uses several reagents to test his dad's homemade health bread to see what kind of macromolecules are in it. Here are his results
Biuret test: positive
Benedict's test: positive
Lugol's test: positive
Sudan IV: negative
Ninhydrin: positive
From these results, Melvin correctly concludes that the bread contains:
 - a. amino acids, starch, protein, and glucose
 - b. protein, glucose, lipids, and amino acids
 - c. glucose, amino acids, starch, and lipids
 - d. fat, protein, lipid, and oil
4. Muscle cells need to manufacture lots of protein. What structures are directly involved in protein manufacture in the muscle cells?
 - a. myoglobin and smooth ER
 - b. Smooth ER and lysosomes
 - c. Rough ER, ribosomes, and the Golgi complex
 - d. Mitochondria and myoglobin
5. Organisms with cells that have a nucleus are referred to as ___ while those organisms whose cells do not contain a nucleus are called___.
 - a. archaic; eukaryotic
 - b. prokaryotic; eukaryotic
 - c. prokaryotic; archaic
 - d. eukaryotic; prokaryotic
6. Buster starts a workout program because he wants to be buff instead of skinny. As the weeks pass and he works out daily, he notices that his muscles don't get tired as fast as they used to. What organelle is increasing in number in his cells?
 - a. mitochondria
 - b. chloroplasts
 - c. vacuoles
 - d. lysosomes
7. Ms. Fishhawk shows her biology class a cell using her Acme Classroom Electron Microscope. The cell has DNA, ribosomes, a plasma membrane, and mitochondria. This could be a cell from:
 - a. a bacterium.
 - b. any eukaryote.
 - c. an animal, but not a plant.
 - d. a plant, but not an animal.
 - e. any kind of organism.
8. What is it that makes the rough Endoplasmic Reticulum rough?
 - a. Lots of chlorophyll.
 - b. All the lipids that it synthesizes.
 - c. Ribosomes that line the entire ER.
 - d. Lipid-based membranes that it is made of.

Answers to written questions:

1. Atoms are the smallest unit of an element. Molecules are made up of atoms bonded together.
2. "Organic" in a chemistry context means carbon-based molecules that contain hydrogen.
3. Simple sugar, amino acid, nucleotide

Answers to multiple choice questions:

1. d
2. c
3. a
4. c
5. d
6. a
7. b
8. c