



Biochemistry



SELF-TEST QUESTIONS

1. Because oxygen atoms tend to attract positively charged atoms, organic compounds that contain oxygen atoms tend to form _____ bonds.
2. In the molecule that has the chemical formula C_2H_4 , the carbon atoms are bonded together with a _____ bond.
3. In a condensation reaction, two molecules combine and a molecule of _____ is produced.
4. A substance that tends not to react with water, "*Water hating*", is _____.
5. Breaking of _____ bonds is the first thing that happens when water is heated, which means that it takes a great deal of thermal energy to raise the temperature of water.
6. _____ is very effective at dissolving other polar substances because of its polarity.
7. _____ compounds are substances produced and found in living things.
8. Animals store glucose-containing molecules in the form of _____.
9. Phospholipids are _____ molecules because they have negative and positive poles.
10. The bond between two amino acids is a _____. The resultant molecule, would be a _____.
11. Compounds with a single chemical formula but different forms are called _____.
12. The formation of a polymer from monomers is the result of _____ reactions.
13. What type of reaction breaks polymers into monomers? _____?
14. The energy 'currency' of cells is _____ or simply _____.
15. A compound that is stored as glycogen in animals and as a starch in plants is _____.
16. Lipids are good storage molecules because they do not affect _____.
17. What are the components of lipids? _____ & _____.
18. What is the monomer of many polysaccharides? _____.
19. What kind of reaction allows amino acids to become linked together? _____.

20. The main function of nucleic acids is to carry _____, _____ and direct _____.
21. The total electrical charge on a water molecule is _____. But the oxygen end has a slight _____ charge and the hydrogen ends have a slight _____ charge.
22. A nucleotide is made of three main components: _____, _____ sugar and an _____.
23. The two types of nucleic acids are _____ nucleic acid and _____ nucleic acid, or _____ and _____ for short.
24. The other common molecule in a cell which contains ribose is _____.
25. Virtually all enzymes are _____.
26. A reactant being catalyzed is known as the _____.
27. The monomers that make up nucleic acids are called _____.
28. The type of attraction that holds two water molecules together is called _____.
29. The four main classes of organic compounds are _____, _____, _____, and _____.
30. Attracted to water molecules, "Water Loving" _____.
31. Large carbon compounds are built from smaller molecules called _____.
32. What is the type of reaction that forms polymers? _____.
33. The main difference among the _____ different amino acids is found in their _____ - _____.
34. A _____ is a complex molecule composed of many monosaccharides.
35. **Two** amino acids join together with a _____, forming a _____.
36. A monomer of protein is called an _____.
37. Molecules with a slightly negative end and a slightly positive end are called _____.
38. Which three elements are often found in organic compounds? _____, _____, and _____.

39. Amino acids bond to each other forming a long chain called a _____.
40. Amino-acids are joined together on _____. This process requires lots of _____ (as _____); so cells making lots of proteins have lots of _____.
41. The compound found in living things that supplies the energy in one of its chemical bonds directly to cells is _____.
42. Enzymes lower activation energy by _____ to the _____ and _____ bonds.
43. Organic molecules that catalyze reactions in living systems are _____.
44. Animals and _____ store glucose as _____.
45. When a protein is heated above 60°C, it is said to be _____.



TRUE OR FALSE?



- ___ The angle shape of the water molecule contributes to its property of polarity.
- ___ Organic compounds are substances produced and found in living things.
- ___ Enzymes speed up a chemical reaction by increasing the activation energy of the reaction.
- ___ When an enzyme binds with its substrate, the activation energy needed for the chemical reaction to occur is raised.
- ___ A functional group changes the structure of a compound but does not alter its chemical properties.
- ___ Because water is a polar molecule, it tends to cause ionic compounds mixed in water to dissociate into ions.
- ___ Without enzymes, the chemical reactions necessary for life would not occur fast enough.
- ___ Amino acids become linked together by peptide bonds during hydrolysis reactions.
- ___ If the body temperature of a human being reached 45°C, many enzymes would be denatured and the individual would die.
- ___ NAD⁺ (or reduced NAD) acts as a cell's "energy currency."