

FRONT

Unit 1: Biochemistry Practice Test

- 1) Which of the following is NOT an organic molecule?
 - A) protein
 - B) nucleic acid
 - C) monosaccharide
 - D) carbon monoxide
 - E) lipids

- 2) Which four elements make up approximately 96% of living matter?
 - A) carbon, hydrogen, nitrogen, oxygen
 - B) carbon, sulfur, phosphorus, hydrogen
 - C) carbon, sodium, chlorine, magnesium
 - D) carbon, oxygen, sulfur, calcium
 - E) oxygen, hydrogen, calcium, sodium

- 3) Which of the following BEST explains the molecular complexity of living organisms?
 - A) The large number of different monomers allows the construction of many polymers
 - B) Each organism has its own unique set of monomers for use in constructing polymers
 - C) Condensation reactions can create different polymers because they can use virtually any molecules in the cell.
 - D) While there are not many macromolecules in cells, each one has many different functions.
 - E) A small number of monomers can be assembled into large polymers with many different sequences

- 4) Which of the following correctly matches an organic polymer with its respective monomers?
 - A) protein and amino acids
 - B) carbohydrates and polysaccharides
 - C) hydrocarbon and monosaccharides
 - D) lipid and steroids
 - E) DNA and ATP

- 5) Keratin and silk are examples of _____ while glucose and sucrose are examples of _____.
 - A) proteins; lipids
 - B) proteins; carbohydrates
 - C) carbohydrates; proteins
 - D) nucleic acids; lipids

- 6) Where is glycogen stored in vertebrate animals?
 - A) liver and muscles
 - B) brain and kidneys
 - C) heart and bones
 - D) pancreas and blood
 - E) liver and heart

- 7) Which of the following provides long-term energy storage for plants?
- A) glucose
 - B) glycogen
 - C) starch
 - D) cellulose
 - E) ATP
- 8) Which of the following can serve as both energy source and as structural support for cells?
- A) Proteins
 - B) Carbohydrates
 - C) Lipids
 - D) Nucleic Acids
- 9) Which of the following is composed of monosaccharide monomer units?
- A) Proteins
 - B) Carbohydrates
 - C) Lipids
 - D) Nucleic Acids
- 10) Starch is to glycogen what _____ is to _____.
- A) oil; fat
 - B) glucose; chitin
 - C) adenine; DNA
 - D) carbon; protein
 - E) hydrolysis; condensation
- 11) Which type of lipid is most important in biological membranes?
- A) fats
 - B) steroids
 - C) phospholipids
 - D) oils
 - E) triglycerides
- 12) Of what are fats composed?
- A) three glycerols and their fatty acids
 - B) three fatty acids and one glycerol
 - C) one glycogen and two phospholipids
 - D) two fatty acids and one carboxyl acid
 - E) three oils and one glycerol
- 13) Phospholipids are unusual and important to cell structure because
- A) they are part of DNA
 - B) they contain fatty acids
 - C) they have a polar and a nonpolar end
 - D) they are found only in animals
 - E) they are an important energy carrier molecule

Practice Test

- 14) You go the store and buy some lard for cooking. You notice when you get home that the lard is solid at room temperature. What does this tell you about the fats in lard?
- A) The fats in lard are not organic molecules
 - B) The lard is composed of saturated fats
 - C) The fats are mostly phospholipids
 - D) The lard is composed of unsaturated fats
- 15) Two classes of organic compounds typically provide energy for living systems. Representatives of these 2 classes are
- A) fats and amino acids.
 - B) amino acids and glycogen.
 - C) amino acids and ribose sugars.
 - D) fats and polysaccharides.
 - E) nucleic acids and phospholipids.
- 16) You have isolated a liquid from a sample of beans. You add the liquid to a beaker of water and shake vigorously. After a few minutes, the water and the other liquid separate into two layers. To which class of biological macromolecules does the unknown liquid most likely belong?
- A) carbohydrates
 - B) lipids
 - C) proteins
 - D) enzymes
 - E) nucleic acids
- 17) Which of the following macromolecules possess large nonpolar regions making them insoluble in water?
- A) Proteins
 - B) Carbohydrates
 - C) Lipids
 - D) Nucleic Acids
- 18) A member of which of the following macromolecule groups is crucial to the structure and function of the cell membrane?
- A) Proteins
 - B) Carbohydrates
 - C) Lipids
 - D) Nucleic Acids
- 19) The group of biological molecules most diverse in function is:
- A) carbohydrates
 - B) lipids
 - C) proteins
 - D) nucleic acids
 - E) organelles
- 20) Organisms contain thousands of different proteins composed of _____ different amino acids.
- A) 4
 - B) 20
 - C) 100
 - D) 1000
 - E) approx. 5000

- 21) What determines the specific function of a protein?
- A) exact sequence of amino acids
 - B) number of disulfide bonds
 - C) a hydrophilic "head" attached to a hydrophobic "tail"
 - D) fatty acids as monomers
 - E) the number of peptide bonds it contains
- 22) Which of these is an example of a protein?
- A) hemoglobin
 - B) cellulose
 - C) estrogen
 - D) ATP
 - E) all of these
- 23) Which type of molecule would be most abundant in a typical cell?
- A) hydrocarbon
 - B) protein
 - C) water
 - D) lipid
 - E) carbohydrate
- 24) Which of the following macromolecules is composed of amino acid subunits?
- A) Proteins
 - B) Carbohydrates
 - C) Lipids
 - D) Nucleic Acids
- 25) Your classmate is trying to keep all the facts about biological molecules straight. She is confused about proteins and asks you to explain how the terms amino acid and protein are related. What do you tell her?
- A) Proteins are made up of a chain of amino acids.
 - B) Amino acids are formed by joining together many proteins.
 - C) Proteins are a portion of an amino acid.
 - D) Proteins are chains of carbohydrates and amino acids are a type of carbohydrate.
- 26) Your friend is trying to learn about how to kill bacteria. She reads that preservatives such as citric acid are added to foods because the acidic environment kills bacteria by denaturing their proteins. She thinks this sounds like a lot of scientific jargon and asks if you know what this means. How can you explain?
- A) Denaturing their proteins means that bacteria explode
 - B) The acid causes the cells to shrivel, also known as denature
 - C) Denaturing means that the proteins of the bacteria lose their structure and can't function, so the bacteria die
 - D) Denaturing refers to the fact that the bacterial cells will divide too quickly and die
- 27) Adenosine triphosphate (ATP) is an example of a(n)
- A) carbohydrate.
 - B) protein
 - C) lipid
 - D) nucleic acid
 - E) inorganic molecule
- 28) A nucleotide is
- A) phospholipid, sugar, base
 - B) phosphate, protein, base
 - C) phosphate, sugar, base
 - D) phospholipid, sugar, protein