Macromolecules quiz questions

BI108 QUIZ No2

Chapters 3 & 4: Macromolecules Quiz

1. . The major carbohydrate-storage molecule in plants is: a. starch. b. cellulose. c. glycogen. d. deoxyribonucleic acid. e. maltose

2. The helix is an example of which level of protein structure? a. Primary structure b. Quaternary structure c. Secondary structure d. Tertiary structure e. none of the above

3. The number of D-amino acids that occur naturally in proteins is: a. zero. b. 20. c. 19. d. 9. e. none of the above

4. In polysaccharides, sugars are linked together with _____ bonds. a. phosphodiester b. peptide c. glycosidic d. hydrophobic e. emotional

5. The major bonds in glycogen are _____ glycosidic bonds. a??? ?????? b??? ?????? c??? ?????? d??? ?????? e. none of the above

6. Fatty acids are stored in fat droplets in the form of:? a. triacylglycerols (triglycerides). b. phospholipids. c. cholesterol. d. glycolipids. e. none of the above

7. Based on their structure, steroid hormones could theoretically be synthesized by simply chemically modifying: 9 . 7 a. cholesterol. b. phospholipids. c. amino acids. d. sugars. e. nucleic acids

8. In the primary structure of a protein, amino acids are joined together by _____ _____ bonds. a. covalent - peptide b. oncovalent-phosphodiester c. glycosidic d. hydrophobic e. noncovalent – peptide

9. 1 he interaction of the and subunits to form the hemoglobin molecule is an T example of _____ structure. 3 1 a. primary b. secondary c. tertiary d. quaternary e. none of the above

10. Which of the following is not involved in forming the tertiary structure of proteins? . 4 1 a. H bonds b. Hydrophobic interactions c. Ionic bonds d. All of the above can be involved. e. none of the above

11. Lipids form the barriers surrounding various compartments within an organism. Which property of lipids makes them a good barrier? a. Many biologically important molecules are not soluble in lipids. b. Lipids are polymers. c. Lipids store energy. d. Triglycerides are lipids. e. Lipids release large amounts of energy when broken down.

12.. You look at the label on a container of shortening and see “ hydrogenated vegetable oil. ” This means that during processing the number of carbon–carbon double bonds in the oil was decreased. What is the result of decreasing the number of double bonds? a. The oil now has a lower melting point. b. The oil is now a solid at room temperature. c. There are more “ kinks” in the fatty acid chains. d. The oil is now a derivative carbohydrate. . The fatty acid is now a triglyceride.

13. The portion of a phospholipid that contains the phosphorous group has one or more electric charges. That makes this region of the molecule a. hydrophobic. b. hydrophilic. c. nonpolar. d. unsaturated. e. saturated.

14. Molecule X is soluble in ether, an organic solvent, but it is not very soluble in water. Based on this information, what class of biological

macromolecules does molecule X belong to? a. Nucleic acids b. Carbohydrates c. Proteins d. Enzymes e. Lipids

15. In a biological membrane, the phospholipids are arranged with the fatty acid chains facing the interior of the membrane.

As a result, the interior of the membrane is: a. hydrophobic. b. hydrophilic. c. charged. d. polar. e. filled with water.

16. The monomers that make up polymeric carbohydrates like starch are called: a. nucleotides. b. trisaccharides. c. monosaccharides. d. nucleosides. e. fatty acids.

17. Glucose and fructose both have the formula C6H12O6, but the atoms in these two compounds are arranged differently. Glucose and fructose are therefore known as: a. isomers. b. polysaccharides. c. oligosaccharides. d. pentoses. e. steroids.

18. A simple sugar with the formula C5H10O5 can be classified as a a. hexose. b. olysaccharide. c. disaccharide. d. pentose. e. lipid.

19. Lactose, or milk sugar, is composed of one glucose unit and one galactose unit. It can therefore be classified as a: a. disaccharide. b. hexose. c. pentose. d. polysaccharide. e. monosaccharide.

20. What is the theoretical number of different proteins that you could make from a total of 50 of the naturally-occurring amino acids? a. 5020 b. 205 c. 2050 d. 1050 e. 250

21. What is the nucleotide sequence of the complementary strand of this DNA molecule: A A T G C G A? a. T T A C G C T b. A A T G C G A c. G G C A T A G d. C C G T T A T e. A G C G T A A

22. The “ backbone” of nucleic acid molecules is made of: a. nitrogenous bases. b. alternating sugars and phosphate groups. c. purines. d. pyrimidines. e. nucleosides.

23. What portion of the polypeptide chain is responsible for establishing and maintaining the force that is used to stabilize secondary structure? a. b. c. d. e. C-terminus N- terminus Both a & c R-groups Carbonyl oxygens

24. How does the hydrogen bonding in alpha-helices differ from the hydrogen bonding in the beta strands of polypeptides? a. alpha bonding is parallel to the axis of the polypeptide b. alpha bonding utilizes R-groups c. eta bonding utilizes R-groups d. beta bonding utilizes only the N-terminus for hydrogen bonding e. none of the above

25. A slight change in the pH environment surrounding a protein could affect the proteins’: a. b. c. d. e. amino acid sequence overall shape overall structure function b, c, & d

26.. DNA and RNA contain: a. amyloses b. hexoses. c. fructoses. d. maltoses. e. pentoses.

27. Which of the following nitrogenous bases represent a pyrimidine? a. b. c. d. e. adenine cytosine guanine thymine b&d

28. In forming a polynucleotide, which parts of the monomers link up via condensation ? a. . c. d. e. phosphate to phosphate base to base sugar to sugar sugar to phosphate any of the above

29. In double-stranded polynucleotides, which parts of the adjacent strands interact chemically and by what chemical process? a. . sugar to sugar; hydrogen bonding b. phosphate to sugar; hydrogen bonding c. base to sugar; hydrogen bonding d. base to base; hydrogen bonding e. base to sugar; diester bond

NOTE: ANSWERS FOLLOW ANSWERS: 1. A 2. C 3. A 4. C 5. A 6. A 7. A 8. A 9. D 10. D 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. A B B E A C A D A C 21. 22. 23. 24. 25. 26. 27. 28. 29. A B E A E E E D D