Bio 220 Exam 1 Part 2

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1. If you remove all of the functional groups from an organic molecule so that it has only carbon and hydrogen atoms, the molecule becomes a _____ molecule.

A) carbohydrate

B) carbonyl

C) carboxyl

D) hydrocarbon

2. All of the following are true of protein denaturation except that it

A) is a shape change

B) is always irreversible

C) may be caused by a pH change

D) could result from a temperature change

3. There are several levels of protein structure, the most complex of which is

A) primary

B) secondary

C) tertiary

D) quaternary

4. Nucleic acids are chains of 5-carbon sugars linked by ____ bonds with an organic base protruding from each sugar.

A) amino

B) phosphodiester

C) carboxyl

D) phosphate

5. With respect to galactose, glucose is

A) a stereoisomer

B) a structural isomer

C) not an isomer

D) unrelated except that they are both sugars

6. The functional group - NH_2 is a(n)

A) carboxyl group

B) amino group

C) hydroxyl group

D) phosphate group

E) carbonyl group

7. Which of the following is not a lipid?

A) chitin

B) terpenes

C) steroids

D) prostaglandins

E) unsaturated fat

8. Glucose is a

A) protein

B) disaccharide

C) nucleic acid

D) monosaccharide

E) starch

9. Double helix describes the structure of a molecule of

A) protein

B) disaccharide

C) starch

D) monosaccharide

E) DNA

10. Triacylglycerol contains fatty acids and

A) glucose

B) glycogen

C) glycerol

D) guanine

E) an amino group

11. Animals store glucose in the form of

A) amylose

B) glycogen

C) glycerol

D) guanine

E) cellulose

12. What is the yield of chemical energy, on average, for every gram of carbohydrate and every gram of fat that is utilized?

A) 4 kcal each

B) 9 kcal each

C) 4 kcal and 9 kcal, respectively

D) 9 kcal and 4 kcal, respectively

E) 40 kcal and 90 kcal, respectively

13. In the formation of a macromolecule, what type of bond would join two amino acid subunits?

A) ionic bond

B) phosphodiester bond

C) hydrogen bond

D) peptide bond

14. In the formation of a macromolecule, what type of reaction would join two subunits together?

A) hydrophobic reaction

B) hydrolysis reaction

C) dehydration reaction

D) denaturation reaction

15. The sequence of amino acids in a polypeptide is called the

A) primary structure

B) secondary structure

C) tertiary structure

D) quaternary structure

16. The globular shape of a protein is called the

A) primary structure

B) secondary structure

C) tertiary structure

D) quaternary structure

17. In a DNA molecule, what holds together nitrogenous bases from the two polymer chains?

A) phosphodiester bonds

B) ionic bonds

C) covalent bonds

D) peptide bonds

E) hydrogen bonds

18. Why is cellulose so difficult for most animals to digest?

A) they don't have the proper enzyme to break the bonds between subunits

B) cellulose is made up of chitin, which is indigestible

C) the bonds holding cellulose subunits together are extremely strong, stronger than in any other macromolecule

D) there are many hydrogen bonds holding the subunits together

19. What happens during a hydrolysis reaction?

A) protein coils into its secondary structure

B) the bond between two subunits of a macromolecule is broken

C) saturated fats become unsaturated

D) a bond is formed between two subunits of a macromolecule

E) water breaks ionic bonds

20. Which of the following nitrogenous bases is found in DNA but is not found in RNA?

A) adenine

B) guanine

C) cytosine

D) thymine

E) uracil

21. What type of macromolecule carries out catalysis in biological systems?

A) proteins called enzymes

B) carbohydrates called starches

C) lipids called steroids

D) nucleic acids called DNA

E) carbohydrates called sugars

22. In nucleic acids, the purine nitrogenous bases are

A) uracil and thymine

B) cytosine and guanine

C) thymine and cytosine

D) adenine and guanine

E) guanine and thymine

23. In proteins, elements of secondary structure combine to form a(n)

A) domain

B) motif

C) alpha helix

D) beta sheet

E) chaperone

24. Molecules that have the same chemical formula but have different molecular structures are called

A) isotopes

B) ions

C) structural isotopes

D) isomers

E) both a and c

25. A hydrocarbon is said to be saturated if:

A) one end of the molecule is hydrophilic while the other end is hydrophobic.

B) it has one or more double bonds between carbon atoms.

C) it contains more than one functional group.

D) each internal carbon atom is covalently bonded to two hydrogen atoms.

E) its functional groups include at least one aromatic ring.