PS Chemistry **Chapter 24 Review** Test Date _____

Read Page 751 in your textbook to review the Main Ideas of the chapter.

- Difference between saturated and unsaturated hydrocarbons
- Identify isomers
- Name organic compounds
- Write molecular formulas for organic compounds
- Difference between hydrocarbons and substituted hydrocarbons
- Types of substituted hydrocarbons
- Monomers and Polymers
- Types of biological compounds (proteins, Nucleic Acids, carbohydrates, lipids)

Matching:

_____1. Hydrocarbons with only single bonds

_____2. Hydrocarbons that have at least one double or triple bond

_____3. Most compounds that contain carbon

_____4. Large molecules made up of many smaller organic molecules that have formed new bonds and are linked together

_____5. Organic compounds whose structural formula contain the benzene ring

_____6. Biological compounds that contain twice as many hydrogen atoms as oxygen atoms

_____7. Polymers formed from amino acids

_____8. Compounds with the same chemical formula but different molecular structures and shapes

_____9. Polymers that control the activities and reproduction of cells

_____10. Small molecules that form links in polymer chains

_____11. Made up of only carbon and hydrogen atoms

_____12. Biological compounds that include fats and oils

_____13. Hydrocarbons in which one or more hydrogen atoms have been replaced with atoms of other elements

A. Aromatic compounds

B. Saturated hydrocarbons

C. Unsaturated hydrocarbons

D. Substituted hydrocarbons

E. Lipids

F. Proteins

G. Isomers

H. Monomers

I. Carbohydrates

J. Nucleic Acids

K. Organic compounds

L. Hydrocarbons

M. Polymers

Multiple Choice:

_____14. Which of the following compounds is a hydrocarbon?

a) CH_3CH_2OH b) C_6H_{14} c) $C_8H_{10}N_4O_2$ d) $C_6H_{12}O_6$

_____15. Which formula represents an unsaturated hydrocarbon?

a) CH_2CHCl b) CH_3CH_2Cl c) $CH_3CH_2CH_3$ d) CH_3CHCH_2

_____16. The compounds CH_3OCH_3 and CH_3CH_2OH are isomers of each other. These two compounds must have the same

a) density b) reactivity c) melting point d) molecular formula

_____17. All organic compounds must contain the element

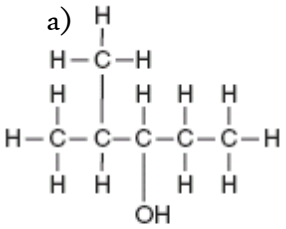
a) phosphorus b) oxygen c) carbon d) nitrogen

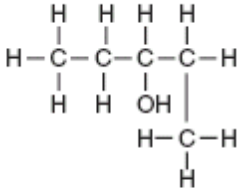
_____18. In saturated hydrocarbons, carbon atoms are bonded to each other by

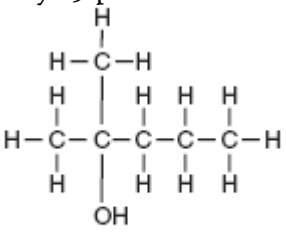
a) single covalent bonds, only b) double covalent bonds, only

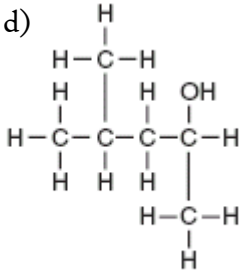
c) alternating single and double covalent bonds d) alternating double and triple covalent bonds

_____19. Which structural formula is correct for 2-methyl-3-pentanol?

a) 

b) 

c) 

d) 

_____20. Carbon forms no more or no less than _?_ covalent bonds.

a) 1 b) 2 c) 3 d) 4

_____21. What is the smallest alkene?

a) methane b) methane c) ethane d) ethene

_____22. Alkynes has

a) c-c single bond b) c-c double bond c) c-c triple bond d) c-c peptide bond

_____23. What is the name of the compound shown in Figure 1?

a) propene b) butane c) isopropane d)propane

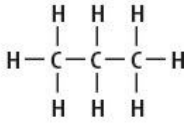


Figure 1

_____24. What kind of organic compound is shown in Figure 1?

a) aromatic hydrocarbon b) saturated hydrocarbon

c) unsaturated hydrocarbon d) substituted hydrocarbon

_____25. Which of the following is a lipid?

a) fructose b) starch c) glucose d) cholesterol

_____26. The monomers that make up DNA are called _____.

a) peptides b) proteins c) amino acids d) nucleotides

_____27. The small molecules that form the links of large molecular chains are called _____

a) monomers b) isomers c) multimers d) polymers

_____28. _____ are compounds that have identical chemical formulas but different molecular structures and shapes.

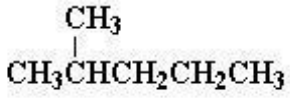
a) Isolates b) Isotopes c) Inorganics d) Isomers

_____29. Which of the following is a carbohydrate?
a) hemoglobin b) DNA c) butter d) starch

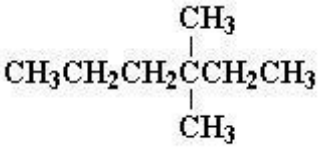
_____30. _____ are formed from amino acids.
a) Fats b) Carbohydrates c) Lipid d) Proteins

_____31. $CH_3CH_2CH_2CH_2CH_3$ is named
a) pentane b) hexane c) propane d) butane

_____32. This compound is named
a) 3-methylpentane
b) 4-methylpentane
c) 2-methylpentane
d) cyclopentane



_____33. This compound is named
a) 4,4-dimethylhexane
b) 3,3-dimethylhexane
c) 3,3-methylhexane
d) 4-methylhexane



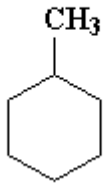
_____34. A compound mistakenly named 3,4-dimethylbutane should be named correctly as (hint: draw the structure with the name given, then look for an error in numbering)
a) 4-methylpentane b) 2-methylpentane c) 1-methylpentane d) 3-methylpentane

_____35. The products of the balanced equation for the combustion of propane are
a) $2CO_2 + 4H_2O$ b) $3CO + 4H_2O$ c) $2CO_2 + 4H_2O$ d) $3CO_2 + 8H_2O$

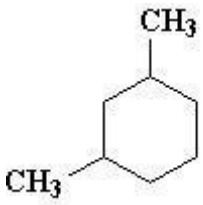
_____36. The names of two structural isomers of C_5H_{12} are (hint: draw them)
a) 2-methylbutane and 2,2-dimethylpropane b) pentane and 2-methylbutane
c) 2,2-dimethylpropane and pentane d) any of the above

_____37. Which of the following pairs represent structural isomers?
a) propane and butane b) 2-methylbutane and butane
c) 2-methylpropane and propane d) 2-methylpentane and 2,3-dimethylbutane

_____38. The name of this compound is
a) 1-methylcyclohexane
b) hexylmethane
c) methylcyclohexane
d) methylhexane



_____39. This compound is named
a) cyclohextyldimethane
b) methylcyclohexane
c) 1,3-methylcyclohexane
d) 1,3-dimethylcyclohexane



Classify each of the following compounds as saturated, unsaturated, or substituted hydrocarbons.

40. hexene _____

41. isopropyl alcohol _____

42. 2-chlorobutane _____

43. cylcooctene _____

44. acetic acid _____

45. 3-dimethylcyclobutene _____

Short Answer:

46. How is this paper chain a good representation of a protein?

47. Compare and contrast carbohydrates and lipids.

48. Explain why each of the following is considered a substituted hydrocarbon: tetrachloroethane, ethanol, and acetic acid.

49. List the monomers that make up the following biological polymers: proteins, nucleic acids, and starches.

50. What are the 'rules' for naming organic compounds?