1. Which element is present in all organic compounds?

   A) nitrogen B) oxygen
   C) carbon D) sulfur

2. Which atoms can bond with each other to form chains, rings, or networks?

   A) carbon atoms B) hydrogen atoms
   C) oxygen atoms D) nitrogen atoms

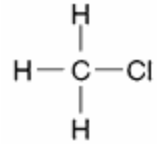
3. A molecule of an organic compound contains at least one atom of

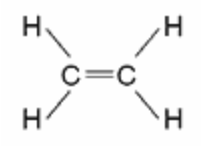
   A) carbon B) chlorine
   C) nitrogen D) oxygen

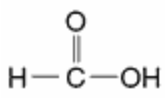
4. Which element must be present in an organic compound?

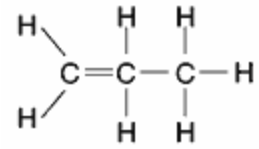
   A) hydrogen B) oxygen
   C) carbon D) nitrogen

5. Which structural formula is *incorrect*?

   A) 

   B) 

   C) 

   D) 

6. Which kind of bond is most common in organic compounds?

   A) covalent B) ionic
   C) hydrogen D) electrovalent

7. Organic compounds differ from inorganic compounds in that organic compounds generally have

   A) low melting points and are electrolytes
   B) low melting points and are nonelectrolytes
   C) high melting points and are electrolytes
   D) high melting points and are nonelectrolytes

8. Compared with the rate of an inorganic reaction, the rate of an organic reaction is usually

   A) faster, because organic compounds are ionic.
   B) faster, because the organic compounds are molecules.
   C) slower, because organic compounds are ionic.
   D) slower, because the organic compounds are molecules.

9. In a given homologous series of hydrocarbons, the boiling point generally increases as the size of the molecules increases. The best explanation for this statement is that in larger organic molecules

   A) the number of covalent bonds per molecule is greater
   B) the molecules are more symmetrical
   C) more hydrogen bonding is possible
   D) there are greater intermolecular forces

10. A compound that is classified as organic must contain the element

    A) carbon B) nitrogen
    C) oxygen D) hydrogen

11. A general characteristic of organic compounds is that they all

    A) react vigorously
    B) dissolve in water
    C) are strong electrolytes
    D) melt at relatively low temperatures

12. The four single bonds of a carbon atom are directed in space toward the corners of a

    A) regular tetrahedron
    B) regular octahedron
    C) square plane
    D) trigonal bipyramid

13. An atom of which element can bond covalently with four other identical atoms?

    A) lithium B) oxygen
    C) fluorine D) carbon

14. Which statement explains why the element carbon forms so many compounds?

A) Carbon atoms combine readily with oxygen.
B) Carbon atoms have very high electronegativity.
C) Carbon readily forms ionic bonds with other carbon atoms.
D) Carbon readily forms covalent bonds with other carbon atoms.

15. Which substance is an important source of organic chemical products and fuels?

A) alcohol B) benzene
C) natural gas D) petroleum

16. What is the maximum number of covalent bonds that can be formed by one carbon atom?

A) 1 B) 2 C) 3 D) 4

17. Functional groups are used to classify

A) organic compounds
B) inorganic compounds
C) heterogeneous mixtures
D) homogeneous mixtures

18. Which element is present in all organic compounds?

A) carbon B) hydrogen
C) nitrogen D) oxygen

19. Which element is present in every organic compound?

A) carbon B) fluorine
C) nitrogen D) oxygen

20. The compounds 2-butanol and 2-butene both contain

A) double bonds, only
B) single bonds, only
C) carbon atoms
D) oxygen atoms

21. What is the geometric shape of a methane molecule?

A) triangular B) rectangular
C) octahedral D) tetrahedral
E) bent

22. Organic compounds differ from inorganic compounds in that organic compounds generally have

A) high melting points and are electrolytes
B) high melting points and are nonelectrolytes
C) low melting points and are electrolytes
D) low melting points and are nonelectrolytes
E) ionic bonds between carbon atoms

23. Compared with the rate of an inorganic reaction, the rate of an organic reaction is usually

A) faster, because organic compounds are ionic
B) faster, because the organic compounds are molecules
C) slower, because organic compounds are ionic
D) slower, because the organic compounds are molecules
E) slower, because organic compounds are nonpolar

24. An organic compound would most likely have

A) an ionic crystalline structure
B) high electrical conductivity in solution
C) a low melting point
D) a tendency to react quickly
E) a very high boiling point

25. Which is a characteristic of most organic compounds?

A) They have very strong intermolecular forces
B) They are primarily ionic in character
C) They are usually nonpolar
D) They are all highly soluble in water
E) They generally have low melting and boiling points