

**Physical Science**  
**Bonds, Formulas, Organic Compounds**

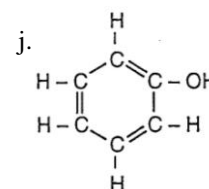
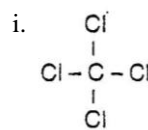
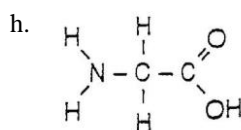
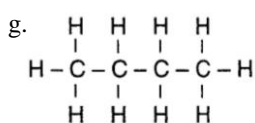
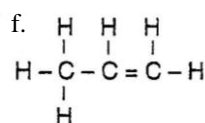
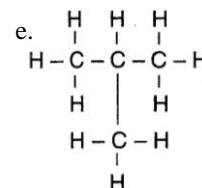
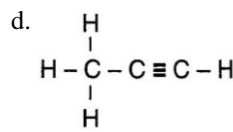
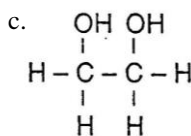
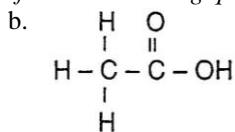
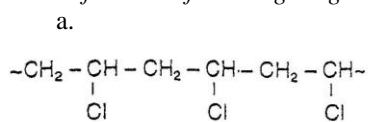
Name \_\_\_\_\_

1. Which element is the basis for organic compounds, how many electrons can it share, why can it share this number, and what kind of bonds are formed when electrons are shared?
2. What is a hydrocarbon?
3. What kind of bond is between the atoms of **saturated** hydrocarbons? What kind of hydrocarbon is this? Names of compounds representing these hydrocarbons end with what 3 letters?
4. What kind of bonds do compounds of **unsaturated** hydrocarbons have?
5. What kinds of hydrocarbons are the unsaturated hydrocarbons? Their names of compounds end with what letters? (Differentiate between all types of unsaturated hydrocarbons).
6. The formula of the compound  $C_7H_{14}$  shows that it is a(n) \_\_\_\_\_ hydrocarbon.
7. The formula of the compound  $C_4H_{10}$  shows that it is a(n) \_\_\_\_\_ hydrocarbon.
8. The formula of the compound  $C_9H_{16}$  shows that it is a(n) \_\_\_\_\_ hydrocarbon.
9. Define **isomer** and draw structural models to illustrate the definition. Use  $C_4H_9OH$ .
10. Compounds containing Benzene rings have what unique characteristic (think nose)?
11. Alcohol compounds are called \_\_\_\_\_. One can always identify the formula of an organic alcohol because it has an \_\_\_\_\_ group.
12. Organic acids are known as \_\_\_\_\_ groups. One can always identify the formula of an organic acid because it has a \_\_\_\_\_ group.
13. What kind of biological compound is  $NH_2CH_2COOH$ ? How do you know (hint: examine the formula)?
14. Name two nucleic acids.
15. Which biological compound is represented by  $C_{12}H_{24}O_{12}$  and how do you know?

16. What is a biological compound that may be saturated or unsaturated and comes from plants and animals? Give one example of each of these saturated fats and unsaturated fats.

17. What do we call biological catalysts?

Refer to the following diagrams for the remaining questions.



18. What kind of compound is indicated by the structure in figure a? \_\_\_\_\_

19. What is the chemical formula for figure c? \_\_\_\_\_

20. Which compound(s) is (are) an alkane? \_\_\_\_\_

21. Which compound(s) is (are) an alkyne? \_\_\_\_\_

22. In figure d, what is represented by the symbol / ? \_\_\_\_\_

23. What is the chemical formula for figure f? \_\_\_\_\_

24. Which two formulas represent isomers of the same compound? \_\_\_\_\_

25. Which of the compounds are aromatics? \_\_\_\_\_

26. What is the formula for the compound in figure b? \_\_\_\_\_

27. What kind of compound is figure h? \_\_\_\_\_

28. Which of the compounds are organic acids? \_\_\_\_\_

29. How are the structures of the organic acids similar? \_\_\_\_\_

30. Which compounds are alcohols and what do they have in common? \_\_\_\_\_

31. Circle the correct name of the formula for the molecular compound pictured in figure i:

carbon chloride      monocarbon chloride      carbon tetrachloride      monocarbon tetrachloride

32. Water molecules are held together with weak \_\_\_\_\_ bonds.