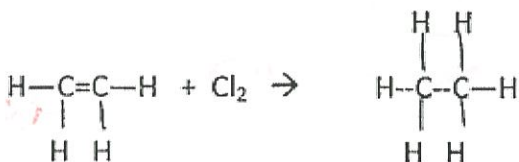
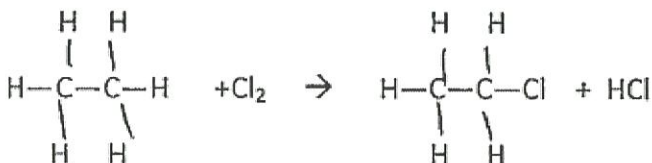


- Write a molecular formula for pentane. C_5H_{12}
- Write a condensed structural formula for pentane $CH_3CH_2CH_2CH_2CH_3$
- Write a structural formula for pentane.
- Draw an isomer of pentane and name it.
 2-methyl butane / or 2,2-dimethyl propane
- What are the products when a hydrocarbon burns? $CO_2 + H_2O$
- Explain the difference between alkanes, alkenes, and alkynes. What is the general formula for each?
 Alkanes: C_nH_{2n+2} (single bonds)
 Alkenes: C_nH_{2n} (double bonds)
 Alkynes: C_nH_{2n-2} (triple bonds)
- Why do the isomers of pentane need different names? — They have different structures
- A fermentation reaction produces: $CO_2 + \text{alcohol}$
- What happens in a polymerization reaction?
 many monomers are linked together to form 1 polymer, which creates a new name.
- Esterification reactions produce ester (& H_2O) by reacting an organic acid and an alcohol.
- You can identify a combustion reaction by the presence of O_2 (or hydrocarbon) as a reactant.
- Saponification produces a soap and alcohol by reacting a fat and a base.
- Which of the following is substitution? Which is addition?



addition



substitution

14. Organic compounds always contain the elements Carbon and Hydrogen.

15. The bonding in organic compounds is covalent.

16. Fill in the chart of properties of organic compounds:

Solubility <i>in water</i>	<i>low</i>
Melting & boiling points	<i>low</i>
Electrolyte?	<i>NO</i>
Reaction rates	<i>SLOW (covalent react)</i>

hydrocarbons $\begin{matrix} | \\ -C- \\ | \end{matrix}$

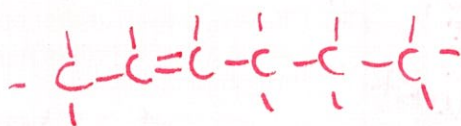
alcohols high higher (H-bonding)

NO still slow

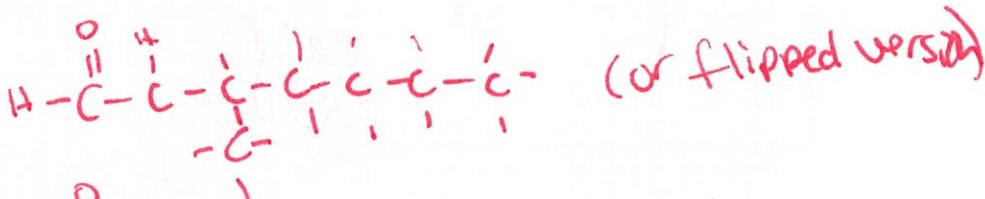
slower bcs NO ions

17. Write a structure for:

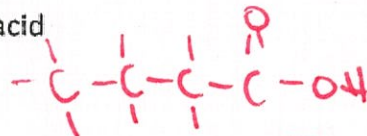
a. 2-hexene



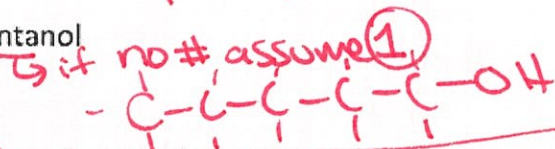
b. 3-methyl heptanal



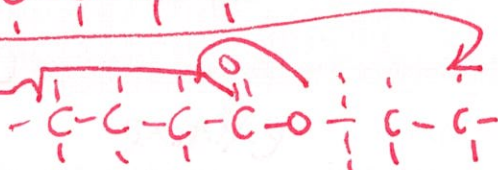
c. butanoic acid



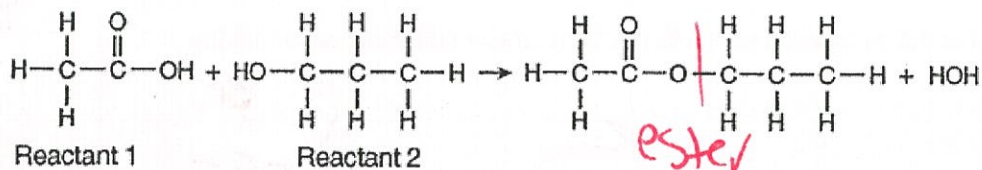
d. pentanol



e. ethyl butanoate



Many artificial flavorings are prepared using the type of organic reaction shown below.



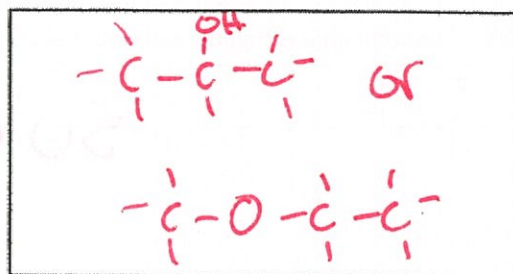
18. What is the name of the organic reaction shown?

esterification

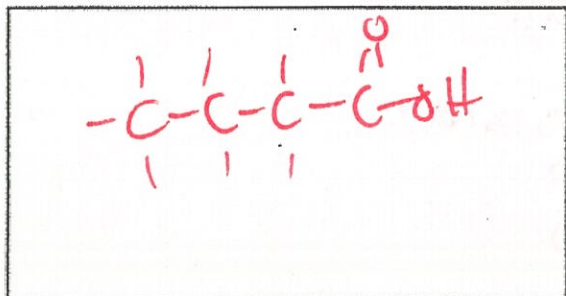
19. To what class of organic compounds does reactant 2 in the given diagram belong?

alcohol

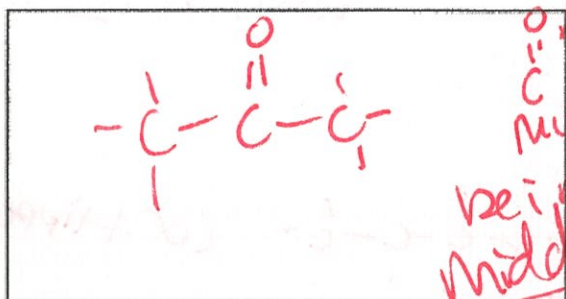
20. In the box below, draw the structural formula of an isomer of reactant 2 in the given diagram.



21) Draw the structural formula for butanoic acid.

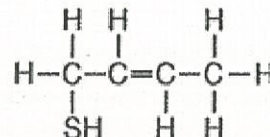


22) In the box below, draw the structural formula for propanone



Questions 23 and 24 refer to the following:

A thiol is very similar to an alcohol, but a thiol has a sulfur atom instead of an oxygen atom in the functional group. One of the compounds in a skunk's spray is 2-butene-1-thiol. The formula of this compound is shown below.



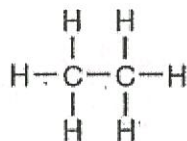
23) Explain, in terms of composition, why the compound described is a thiol.

There is a "SH" group which is similar to OH, but called a thiol when w/ sulfur

24) Explain, in terms of electron configuration, why oxygen atoms and sulfur atoms form compounds with similar molecular structures.

They have the same # of valence electrons

25. Give the following structural formula:



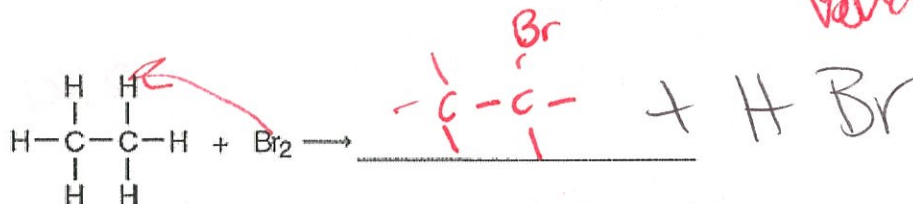
(a) To what series of homologous hydrocarbons does this compound belong? *alkane*

(b) Write the correct IUPAC name for this compound. *ethane*

(c) Is this compound saturated or unsaturated? [Give evidence to support your answer.]

Saturated (all single bonds)

(d) On the line below, write the product(s) for the reaction of this compound with Br₂.



(e) Name the type of organic reaction that occurs between C₂H₆ and Br₂.

Substitution