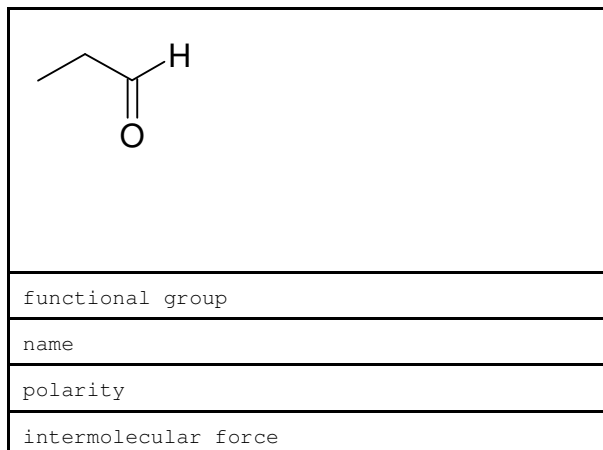
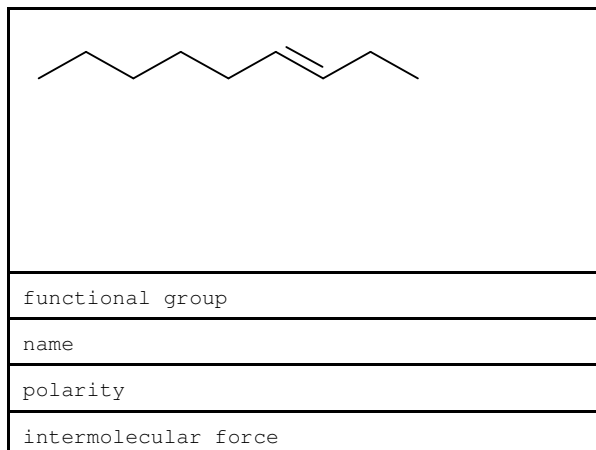


**Organic Chemistry Test - SCH 4C**

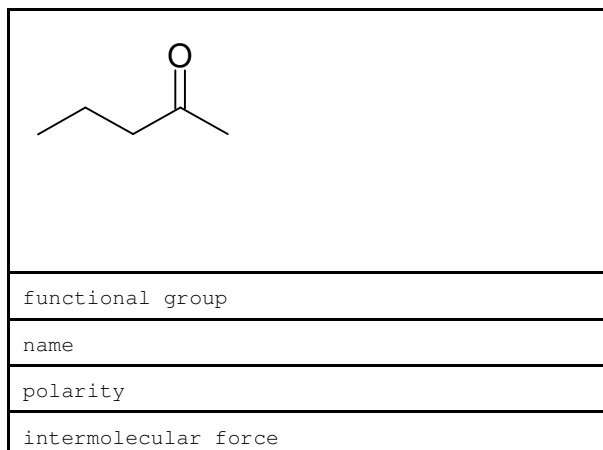
1. For each of the following structures write the name of the functional group (i.e. the family of organic compounds to which it belongs), the name of the compound where requested, comment on the level of polarity for the compound and finally state the type of intermolecular force present between molecules (choose from van der Waal, dipole or hydrogen bond). Use the information on the bottom of the next page to assist in naming.



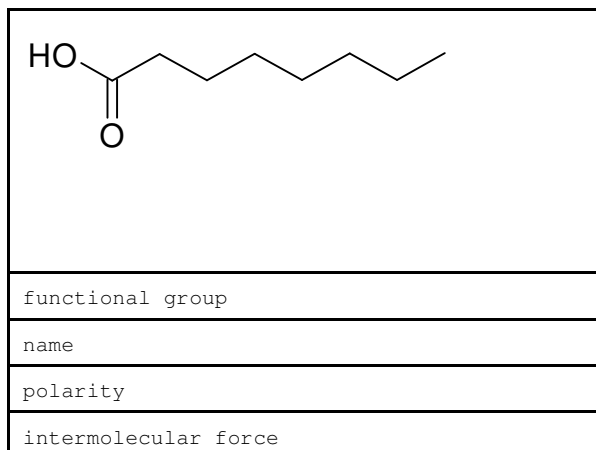
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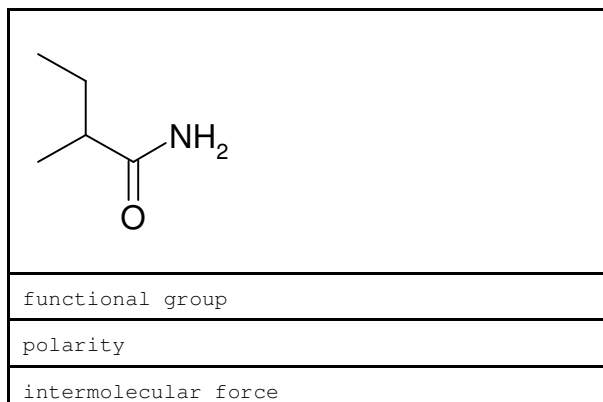
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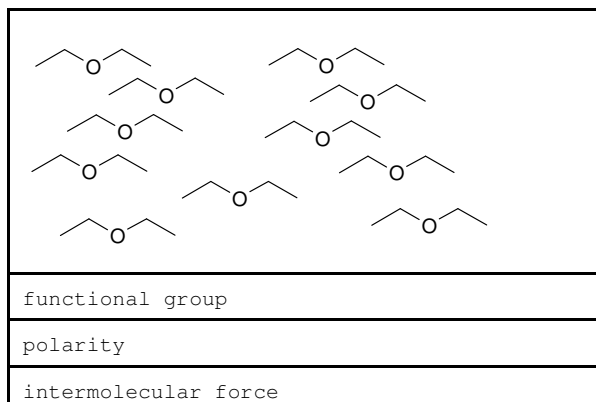
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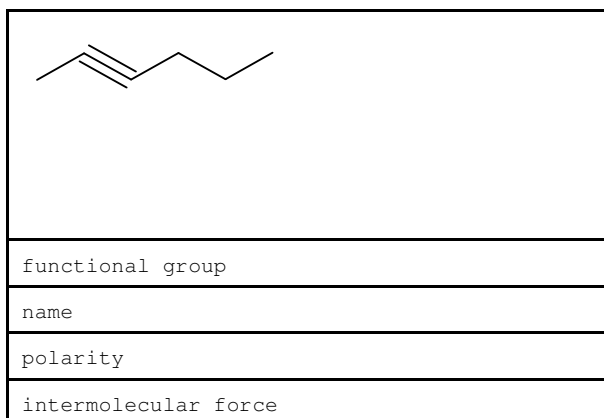
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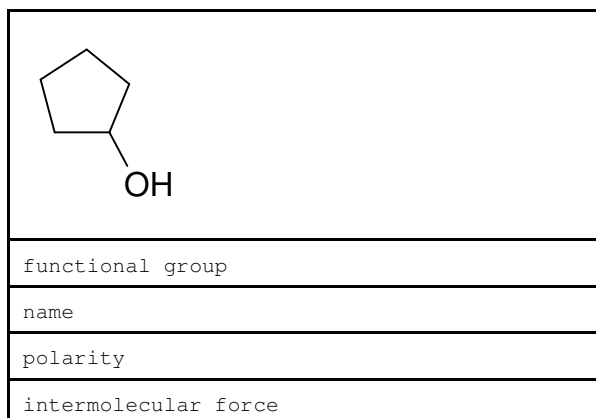
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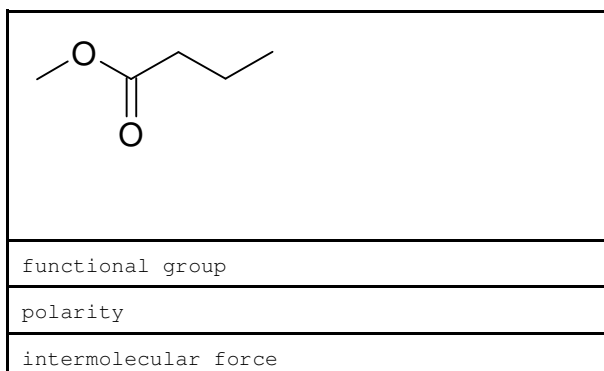
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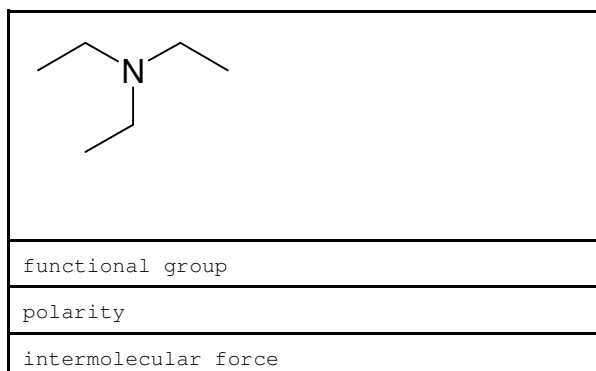
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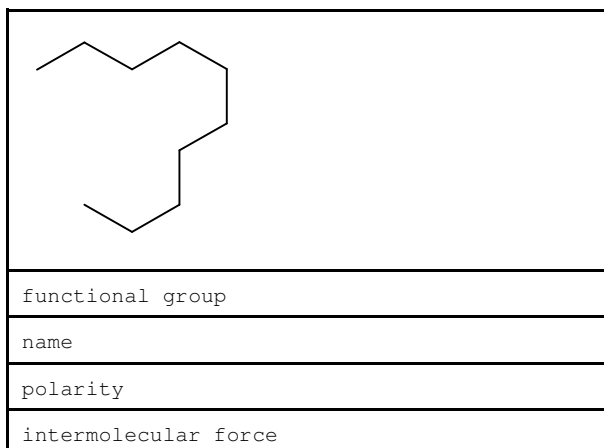
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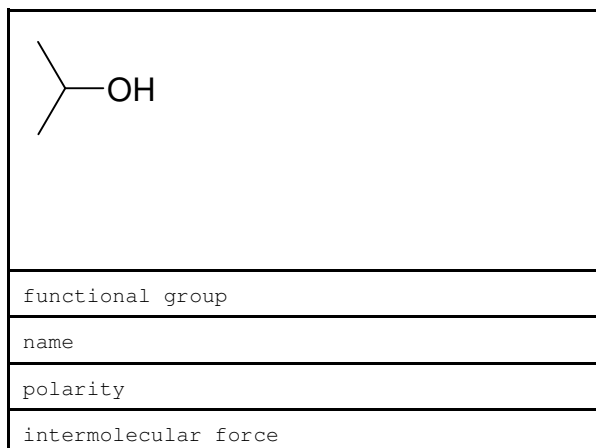
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/3



/4



/4

Prefix - number of carbons  
relationship

meth - 1  
eth - 2  
prop - 3  
but - 4  
pent - 5  
hex - 6  
hept - 7  
oct - 8  
non - 9  
dec - 10

Suffix - functional group  
relationship

ane - alkane  
ene - alkene  
yne - alkyne  
anol - alcohol  
anal - aldehyde  
anone - ketone  
anoic acid - carboxylic acid

2. For each of the following pairs of compounds,
- draw a structure using either full structures, abbreviated structures (i.e. H not drawn in) or simplified stick structures
  - state the polarity of each compound
  - state the name of the primary intermolecular force of attraction
  - circle the one with the highest boiling point
  - give an explanation for the reasoning behind your choice of highest boiling point.

methane	butane
polarity	polarity
intermolecular force	intermolecular force
explanation for choice of highest boiling point	

17

ethanal	ethanoic acid
polarity	polarity
intermolecular force	intermolecular force
explanation for choice of highest boiling point	

butanoic acid	octanoic acid
polarity	polarity
intermolecular force	intermolecular force
explanation for choice of highest boiling point	


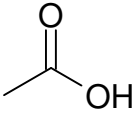
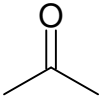
/8

ethanol	2-decene
polarity	polarity
intermolecular force	intermolecular force
explanation for choice of highest boiling point	

/8

3. Identify the type of intermolecular force (there are three to choose from) that will act between molecules in the liquid or solid state for each molecule

a)

water


H-Cl
NH <sub>3</sub>


/6

4. List the three types of intermolecular forces in order of increasing strength (assume all molecules are roughly the same size) What is the primary reason for this increase in strength. Explain.

/3

/9