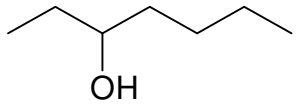
/85 = % Name:_____

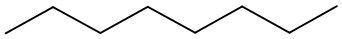
Organic Chemistry Test – SCH 4C

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.



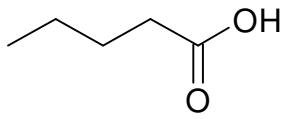
functional group
name
polarity
intermolecular force

/4



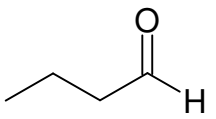
functional group
name
polarity
intermolecular force

/4



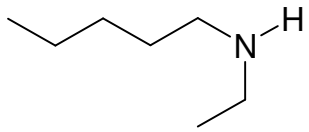
functional group
name
polarity
intermolecular force

/4



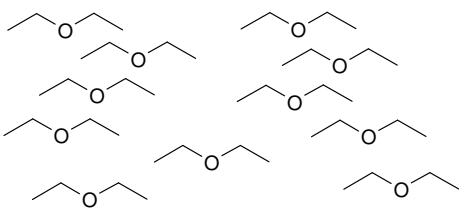
functional group
name
polarity
intermolecular force

/4



functional group
polarity
intermolecular force

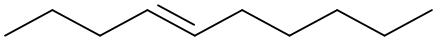
/3



functional group
polarity
intermolecular force

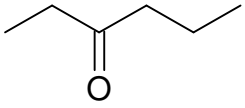
/3

22



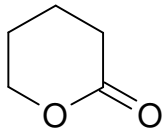
functional group
name
polarity
intermolecular force

/4



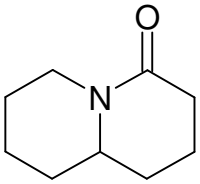
functional group
name
polarity
intermolecular force

/4



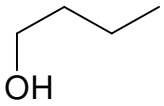
functional group
polarity
intermolecular force

/3



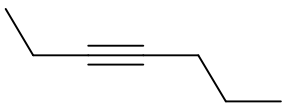
functional group
polarity
intermolecular force

/3



functional group
name
polarity
intermolecular force

/4



functional group
name
polarity
intermolecular force

/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 intermolcular force of attraction
   - circle the one with the highest boiling point
   - give and explanation for the reasoning behind your choice of highest boiling point.

pentane	propane
polarity	polarity
intermolecular force	intermolecular force
explanation for choice of highest boiling point	

/7

1-propanol	propanoic acid
polarity	polarity
intermolecular force	intermolecular force
explanation for choice of highest boiling point	

/7

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continued on next page

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

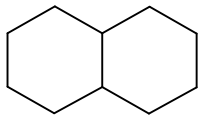
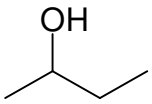
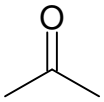
/8

octane	methanol
polarity	polarity
intermolecular force	intermolecular force
explanation for choice of highest boiling point	

/8

/16

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

water


H_2S
NH_3


/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.

/5

/11