Organic: Functional Groups

1. Use these organic compounds to answer this question.

Number	Compound
1	CH_4
2	C_2H_4
3	CCl_4
4	C_6H_6
5	CH_3COOH
6	CH_3OOCCH_3
7	2-phenylbutane

The most likely compound that might be used as flavouring agent is _____

a) 2 b) 4
c) 6 d) 7

2. Use these organic compounds to answer this question.

Number	Compound
1	C_3H_8
2	C_2H_2
3	CH_3OH
4	C_6H_6
5	CH_3COOH
6	CH_2O
7	HCOOH

The compound that would most likely be used in dressing for a salad is_____

a) 3 b) 6
b) 5 d) 7

3. Some organic compounds exhibit the following properties:

Property
Turn HBb yellow
Dissolves in water
React with active metals to form Hydrogen gas
Exhibit hydrogen bonding.

The group of compounds that exhibits ALL these properties listed above is _____

a) alkanes b) acids
c) alcohols d) esters

4. $CH_3COOC_2H_5$ is an example of a(n) _____

a) organic acid b) ester
c) alcohol d) aromatic

5. The compound with the formula **$CH_3CH_2OOCH_2CH_3$** is a member of the _____ family of hydrocarbon derivatives.

a) alkyl halides
b) esters
c) carboxyllic acids
d) alcohols

6. A student is given a molecular model kit which contained 3 carbon atoms, 6 hydrogen atoms, and 2 oxygen atoms. Using all of these atoms, the student would be able to make models of a(n)_____ or a(n) _____

a) alkane, ester
b) acid , ester
c) alkene, alcohol
d) phenyl , acid

7. If R represents a group of carbons and hydrogen, then the general formula for a carboxyllic acid is _____

a) R-COOH
b) R-CH
c) R-COH
d) R-COO-R

8. A carbonyl functional group is found in the following group(s)

a) alcohols and phenyls
b) carboxylic acids and esters
c) aromatics and alkenes
d) alkanes and aromatics

9. Three organic homologous series include: alkanes, carboxylic acids, and esters. In the order given, correct general formulas for these groups will be: _____, _____ and _____. (R is a group of carbons and related hydrogen attachments)

a) C_nH_{2n+2}, RCOOH, RCOOR
b) C_nH_{2n}, ROH, RCOOR
c) C_nH_{2n-2}, RCOOH, RCOR
d) C_nH_{2n+2}, RCOOR, RCOOH

10. When naming an ester, the_____ acts as the _____ and the _____ acts as the _____.

a	Acid	Branch	Alcohol	Parent
b	alcohol	Parent	Acid	parent
c	acid	branch	alcohol	branch
d	alcohol	branch	acid	parent

11. A list of substances contains a phenyl, an alkyne and an acid. Which substance listed below does not belong on this list?

a) $CH_3CH_2CH(C_6H_5)CH_3$
b) HOOCCOOH
c) $CH_3C(CH_3)_2CH_3$
d) $CH_3CH(CH_3)CCH$

12. **Numerical response question**

Left justify your answer in the boxes provided.

Greg is looking for substance(s) that might vaporize at room temperature. He is choosing from the list below.

1. Chloroethene
2. Ethene
3. Propan-1-ol
4. Ethane

To solve this dilemma Greg puts the compounds in order from the lowest boiling point to the highest boiling point.

The correct order will be ____, ____, ____, and ____.

13. **Numerical response question**

Left justify your answer in the boxes provided.

After writing a hard mathematics exam, Callista took a Tylenol to relieve her headache before chemistry class. The active ingredient in the Tylenol is Shown in the structural diagram below.

Choose all the descriptors below that apply to this compounds

1. Aliphatic
2. Aromatic
3. Carboxyl
4. Hydroxyl
5. Acid
6. Alkene

Put the answer(s) in ascending order.

Solutions:

1. C
2. B
3. B
4. B
5. B
6. B
7. A
8. B
9. A
10. D
11. C
12. 2413
13. 245