Organic: Functional groups

1. Use these organic compounds to answer this question.

|  |  |
| --- | --- |
| Number | Compound |
| 1 | CH4 |
| 2 | C2H4 |
| 3 | CCl4 |
| 4 | C6H6 |
| 5 | CH3 COOH |
| 6 | CH3OOCCH3 |
| 7 | 2-phenylbutane |

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

1. 2 b) 4

c) 6 d) 7

1. Use these organic compounds to answer this question.

|  |  |
| --- | --- |
| Number | Compound |
| 1 | C3H8 |
| 2 | C2H2 |
| 3 | CH3OH |
| 4 | C6H6 |
| 5 | CH3 COOH |
| 6 | CH2O |
| 7 | HCOOH |

The compound that would most likely be used in dressing for a salad is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. 3 b) 6
2. 5 d) 7
3. Some organic compounds exhibit the following properties:

|  |  |
| --- | --- |
|  | Property |
| 1 | Turn HBb yellow |
| 2 | Dissolves in water |
| 3 | React with active metals to form Hydrogen gas |
| 4 | Exhibit hydrogen bonding. |

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

a) alkanes b) acids

c) alcohols d) esters

4. CH3COOC2H5 is an example of a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

a) organic acid b) ester

c) alcohol d) aromatic

1. The compound with the formula **CH3CH2OOCH2CH3**  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)

1. CnH2n+2, RCOOH, RCOOR
2. CnH2n, ROH, RCOOR
3. CnH2n-2, RCOOH, RCOR
4. CnH2n+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) CH3CH2CH(C6H5)CH3

b) HOOCCOOH

c) CH3C(CH3)2CH3

d) CH3CH(CH3)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 \_\_\_\_. |

Solution 2413

13. **Numerical response question**

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| --- | --- | --- | --- |
|  |  |  |  |

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.    C – O OH  O H-C-H  H  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. |
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|  |
|  |

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