Organic: Separate Organic compounds

1. The separation of the various components of crude petroleum by the differences of their boiling point is known as \_\_\_\_
2. Fractional distillation b) Substitution

c) Elimination d) Polymerization

2. The process commonly used to convert pure samples of high molar mass hydrocarbons into low molar mass hydrocarbons is called \_\_\_\_\_\_\_\_\_\_\_\_\_

a) Cracking b) Combustion

c) Substitution d) Fractional distillation

3. Crude petroleum is a complex mixture of hydrocarbons. The process involved in separation and purification of the desirable components of crude petroleum is called\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

a) Cracking b) Elimination

c) Fractional distillation d) Esterification

4. The boiling points for a homologous series of methyl halides is given below

|  |  |  |
| --- | --- | --- |
|  | Methyl Halide | Boiling point oC |
| 1 | CH3I | 43 |
| 2 | CH3F | -78 |
| 3 | CH3Cl | -24 |
| 4 | CH3Br | ? |

The boiling point of CH3Br will be about \_\_\_\_\_\_\_\_\_\_\_oC.

1. 4 b) 50

c) -30 d) -90

5. Crude oil, a mixture of hydrocarbons, can be separated by their boiling points. Such a process is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

a) titration

b) precipitation

c) solvent extraction

d) fractional distillation

6. There are several products that are condensed from a distillation column.

|  |  |
| --- | --- |
| Number | compound |
| 1 | C16H34 |
| 2 | C2H4 |
| 3 | C12H26 |
| 4 | C5H12 |

The correct order, if the substances are listed from the highest boiling point to the lowest boiling point will be \_\_\_\_\_\_\_\_\_\_\_\_

1. 1342 b) 2431 c) 3142 d) 4231

**7. Numerical response question**

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

Left justify your answer in the boxes provided.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Liz has four unlabelled bottles that contain one of the following: ethane, ethanol, ethyl ethanoate or Ethanoic acid. Liz tests the four solutions and has the following observations.   |  |  |  |  | | --- | --- | --- | --- | | Compound | Solubility in water | Boiling point | Odor | | 1 | Not soluble | -89 oC | Odorless | | 2 | Somewhat soluble | 77 oC | Sweet | | 3 | Highly soluble | 78 oC | Sharp, antiseptic smell | | 4 | Highly soluble | 118 oC | Sharp vinegar smell |   Using Liz’s observations, the compounds are:  \_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_  Ethane Ethanoic acid Ethyl ethanoate Ethanol  Solution 1423 |

Solutions:

* + - 1. A
      2. A
      3. C
      4. A
      5. D
      6. A
      7. 1342