NAME: UMOINYANG, FLORENCE AKAI MATRIC NO: 017/ENG01/030 DEPARTMENT: CHEMICAL ENGINEERING

Number 1.

A. Possible formulas for molecular ion (m/z) of 105. i.) C8H9 ii.) C7H5O iii.) C7H7N

B. Importance of organic compounds. i.) Organic compounds serve as the basis of all carbon-based life on earth, an element that all living organisms contain. ii.) Organic elements create energy production in biological life, depletion of atmosphere and release energy from hydrocarbons. iii.) Organic compounds contained in crude oil is refined in gasoline, propane, diesel, kerosene and natural gas so cars and heating systems can work. iv.) They are also contained in carbohydrate which provide life forms with the energy needed to maintain cellular function in the body.

C. Differences between homocyclic and heterocyclic compounds

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| **HOMOCYCLIC** | **HETEROCYCLIC** |
| 1. These are cyclic compounds having atoms of the same elements as ring members.
2. Contains atoms of the same elements.
3. Contains atoms of the same elements bonded to each other which forms a ring.
4. Examples are benzene, cyclohexane, toluene, cyclohexanol.
 | 1. These are cyclic compounds having atoms of different atoms of the different elements as ring members including carbon.
2. Contains atoms of different elements.
3. Contains atoms of at least two different elements bonded to each other forming a ring.
4. Examples are pyran, azoane, thioxane
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NUMBER 2.

1. i). 2.4/12.2 = 0.20 ii). 5.6/12.2 = 0.46 iii). 8.9/12.2 = 0.73
2. A is from aldehyde and B is from alkenes.
3. 2,4-DNPH test is employed for aldehyde and ketones.
4. 7 functional group and examples

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| FUNCTIONAL GROUP | EXAMPLES |
| 1. Alkanes
2. Alkenes
3. Alcohol
4. Alkanal
5. Carboxylic acid
6. Alkyl
7. Alkynes
 | * Methane, Ethane
* Butene, Hexene
* Propanol, Heptanol
* Butanal, Propanal
* Ethanoic acid, Propanoic acid
* Propyl, Ethyl
* Methyne, Propyne
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