**EMMANUEL-ANTHONY HANNAH**

**17/MHS01/114**

**CHM 102**

1. **a. C3H7NO3 – 3(12) +7(1) +14+ 3(16) = 105; Isopropyl nitrate.**

 **C4H11NO2 – 4(12) +11(1) +14+2(16) = 105; Di-ethanolamine.**

 **C2H2Br – 2(12) + 2(1) + 79 = 105; Bromoethene**

 **C5H10Cl – 5(12) + 10(1) + 35 = 105; Cyclopentane chloride**

**b. - Carbohydrates are organic compounds made up of hydrogen, carbon and oxygen in ratio 1:2:1 respectively. They store energy and serve as a structural component in plants.**

 **- Proteins are made up of chains of organic molecules called amino acids.**

 **- Organic compounds serve as the basis of food. The food material are created from carbon atoms through carbohydrate, proteins and fats.**

 **- Hydrocarbons are organic compounds made up entirely of hydrogen and carbon. They are found naturally in crude oil and serve as a source of energy (fuel).**

 **- Organic compounds makes up nucleic acids (DNA) that helps to create, encode, and then store information in the nucleus of all living cells of an organism.**

**c.**

|  |  |
| --- | --- |
| **HOMOCYCLIC COMPOUNDS**  | **HETEROCYCLIC COMPOUNDS**  |
| * **Homocyclic compounds ring contains only one type of atom, mainly carbon.**
 | * **Heterocyclic compounds ring contains at least two different types of atoms including carbon.**
 |
| * **They are alicyclic homocyclic and aromatic homocyclic in nature.**
 | * **They are alicyclic heterocyclic and aromatic heterocyclic in nature.**
 |
| * **Absence of heteroatoms**
 | * **Presence of heteroatoms**
 |
| * **Examples; phenol, toluene, naphthalene and anthracene.**
 | * **Examples; tetrehydrofuran, piperidine, pyridine, furan and pyrrole.**
 |

1. **a. Solvent front =12.2cm**

 **1st band distance = 2.4cm**

 **Rf = 2.4cm**

 **12.2cm =0.1967.**

 **2nd band distance = 5.6cm**

 **Rf = 5.6cm**

 **12.2cm =0.0459.**

 **3rd band distance = 8.9cm**

 **Rf = 8.9cm**

 **12.2cm =0.7295.**

**b. Organic compound A belongs to the Aldehydes functional group.**

 **Organic compound B belongs to the Alkenes functional group.**

**c. Aldehydes and Ketones.**

**d. Alkanol, e.g. Butanol and Methylpropan-2-ol.**

 **Carboxylic acid, e.g. Pentanoic acid and 2, 3-dibromobenzoic acid**

 **Alkane, e.g. 2-methylpentane and 4-ethyl-2-metylheptane.**

 **Alkyne, e.g. Ethyne and 3-methyl-1-butyne.**

 **Amides, e.g. 1-methylpropanamide and pentamide.**

 **Alkyl halides, e.g. 2-chloropropane and 1-bromo-2-methylpropane.**

 **Ethers, e.g. 2-methoxy-2-methylpropane and diphenylether.**