**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.**

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| --- | --- |
| **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.**