LAWOYIN JOYCE

17/MHS01/178

COLLEGE OF MEDICINE AND HEALTH SCIENCES

DEPARTMENT OF MEDICINE AND SURGERY

CHM 102

QUESTION 1

1. m/z= 105. It is odd, therefore, it has Nitrogen.

Taking Nitrogen= 14amu

105 – 14= 91

To find the mass number of Carbon;

$$91÷12=7.6$$

Therefore, 7 is the number of mole of carbon

To find for Hydrogen:-

$7×12=84$

$$91-84=7$$

Therefore, 7 is the number of mole of hydrogen

The formula is **C7NH7**

Or

If Oxygen was introduced:

105 – 14(for Nitrogen) = 91

Taking O = 16,

91 – 16 = 75

75 ÷ 12 = 6.25

$$6×12=72$$

Therefore, 72 is the number of carbon atoms.

75 – 72 = 3

Therefore, number of hydrogen atoms =3

 The formula is **C6NOH3**

B. 1) They are important constituents of the food we eat.

 2) They are used in industries for production of antiseptic.

 3) Ethanol is a staple in the beverage industry.

 4) They are important in medicine for production of drugs.

 5) They are important constitutes of crude oil therefore used as fuels for automobiles.

C. Differences between Homocyclic and Heterocyclic compounds

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| Homocyclic compounds | Heterocyclic compounds |
| 1. Homocyclic compound rings contain only one kind of atom.
 | Heterocyclic compound rings contain at least two kinds of atoms including carbon. |
| 1. Contain 100% carbon atom in their ring.
 | Contain mainly carbon atoms and in addition heteroatom’s such as nitrogen in their ring. |
| 1. E.g. phenol, toluene.
 | E.g. tetrahydrofuran, furan. |

QUESTION 2

1. Retardation Factor =$\frac{distance of substance/solute}{distance of solvent}$.
* For 1st Band:- $\frac{2.4}{12.2}=0.19672 $
* For 2nd Band:- $\frac{5.6}{12.2}=0.4590$
* For 3rd Band:- $\frac{8.9}{12.2}=0.7295$
1. A belongs to Aldehyde while B belongs to Alkene
2. 2,4-Dinitrophenylhydrazine test is employed for KETONES

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| FUNCTIONAL GROUP | EXAMPLES |
| -OH | Methanol, Butanol |
| -COOH | Ethanoic acid, Propanoic acid |
| -CHO | Methanal, Propanal |
| $$-NH\_{2}$$ | Methylamine, Ethylamine |
| -O- | Ethyl methanoate, Ethyl propanoate |
| C=C | Ethene, Butene |
| X=F,Cl,Br,I | Ethyl bromide, Butyl chloride |