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COLLEGE: MHS

DEPARTMENT: MEDICINE AND SURGERY

MATRIC NO: 17/MHS01/198

1.a) **Question 1**

Suggest possible formulas for a molecular ion (m/z) of 105  
Answer



Fragment at m/z =105  
Step1- if the mass of the molecular ion is odd it contains at least one nitrogen N= 14 atoms   
105-14=91  
Step2- determine max NC’S  
= 7.5 ?  
Sep3- add enough H’s to make up the rest of the mad  
7×12=84  
1×14=14  
105-(84+14) =7  
7H’S gives   
(2n+2-7)/2= 2(7.5) +2-7/2 =5.25  
Step4- add an O atom   
 - Azocine  
 Pyran-3-carbonitrile  
 = 5.5 ~ 6

Other formula include;

– 2-Phenylethyl

b). IMPORTANCE OF ORGANIC CHEMISTY

- They can be used a medicines to cure diseases.

- They are also used in the process of studying diseases.

- They are essential as they are present in food substances which consists of mainly carbon and oxygen.

- Organic substances are used as cleansing agent to clear impurities.

- They are used as sterilizing agents and disinfectants.

-Using different types of titration, chromatography techniques, and spectrophotometry, they are used as analytic agents to analyze drugs, pesticides and other chemical substances.

- They are used as valuables and means of income and exchange when they exist in diamond, graphite, petroleum etc.

- Some can be used in the process to prepare other molecules or compounds.

-Organic compounds are used as dies like indigo,

-They are also used in textile and clothing.

c).DIFFERENCES BETWEEN HOMOCYCLIC AND HETEROCYCLIC COMPOUNDS.

|  |  |  |
| --- | --- | --- |
|  | HOMOCYCLIC | HETEROCYCLIC |
| 1. | Homocyclic Compound ring contains only one types of atom. | Heterocyclic Compound ring contains at least two different types of atoms including carbon. |
| 2 | Homocyclic Compounds have 100% carbon atoms in their ring. | Heterocyclic Compounds have mainly carbon and, in addition, heteroatoms such as nitrogen, oxygen, and sulphur are found in their ring. |
| 3 | They are subdivided into; Alicyclic homocyclic and Aromatic homocyclic | Alicyclic heterocyclic and Aromatic heterocyclic |
|  | Phenol, Toluene, Naphthalene, and Anthracene | Tetrahydrofuran, Piperidine, Pyridine, Furan, and Pyrrole |

2.

a)retention factor RF, = Distance moved by the solvent

Distance moved by the solute

Distance moved by solute=12.2cm

Distance moved by solvent A=2.4cm B=5.6cm C=8.9

Rf of A =2.4/12.2/ = 0.20

Rf of B= 5.6/12.2/ =0.46

Rf of C= 8.9/12.2/ =0.73

b)A- aldehydes

B- alkenes.

c) aldehydes and ketones

d)

|  |  |  |
| --- | --- | --- |
|  | FUNCTIONAL GROUP | EXAMPLES |
| 1 | Alkane | Propane, methane. |
| 2 | Alkene | Ethene, propene |
| 3 | Alkyne | Ethyl, butyl |
| 4 | Haloalkane | 1-chloropropane, 2-bromopentane |
| 5 | Hydroxyl | Propanol, ethanol |
| 6 | Ketones | Propanone, |
| 7 | Carboxyl | Ethanoic acid, propanioc acid |