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COURSE TITLE: CHEM 102

QUESTION 1

A. M/Z 105This is an ODD molecular ion which means it must contain an N atom.

Therefore, I did the following:

105-14 = 91

91/12 = 7remainder7

Therefore, a possible molecular formula is C7H7N

B. Importance of organic compounds

1. It is important in the production of clothes

2. It helps in the production of soap, perfume, cosmetics, oils etc.

3. It helps in the production of certain antibiotics which contributes widely to medicine.

4. It is important in fuels( coal, wood, petrol etc.)

5. It is important in the production of dyes common articles and household items.

C. Difference between homocyclic and heterocyclic compounds

|  |  |
| --- | --- |
| Homocyclic | Heterocyclic |
| It consist of a ring compound containing atoms of the same element | It consist of a ring compound containing atoms of different elements |
| It is occupied only by carbon atoms | It is occupied by different elements including carbon |
| The bond between them are single bonds | They can have single and double bonds in them |
| Examples: toluene, benzene, cyclohexane etc. | Examples: pyran, azocine, thiocane |

QUESTION 2

1. Retardation factor

2.4/12.2 = 0.197

5.6/12.2 = 0.459

8.9/12.2= 0.729

B. Compound A belongs to the alkanal family

Compound B belongs to the alkene family

1. It is employed for the identification of aldehyde and ketone
2. Functional groups

|  |  |
| --- | --- |
| Functional group | Examples |
| -OH | Butanol, 1,2,3-propan-tri-ol |
| - | Ethane, Butane |
| -COH | Ethanal, Butanol |
| -NH2 | Methylamine, phenylamine |
| -CL, -F | 2-chloropentane, 3,3-trichloro butane |
| -COOH | Benzoic acid, ethanedioc acid |
| R | Butyl, Ethyl |