MAT NO: 17/MHS01/174

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***QUESTION 1***

1. Since the mass total is 105 which is an odd number. Therefore, at least 1 nitrogen atom is present.

So subtracting 14 from 105 leaves 91 as the mass from carbon and hydrogen.

91/12= 7 remainder 7

7 carbon atoms

7 it from atoms

1 nitrogen atom

Therefore, C₇H₇N is the possible molecular formula

B. Organic compounds play an important role in our daily activities.

A. In Food: Carbohydrate, Proteins, Fats, vitamins, Enzymes, etc.

B. In Clothes: - Cotton, Silk, Wool, Nylon, Rayon, Dacron, etc.

C. In Fuels: - coal, Wood, Natural gas, Petrol, etc.

D. In Medicines: - Penicillin, Streptomycin, Chloromycetin, Sulphadiazine, Morphine,

Aspirin,Iodoform, Cocaine, etc.

E. In Explosives: - Nitroglycerine, Nitrocellulose, T.N.B, T. N.T, etc.

F. In Dyes: - Indigo, Malachite green, Alizarin, etc.

G. In Insecticides: - D.D.T, Gammexane, Malathion, etc.

H. In Household and other common articles:- soaps, Cosmetics, Perfumes, Detergents,

paper, Rubber, Plastics, Leather,Resins, Inks, Paints, Varnishes, Photographic films,

etc.

c. Homocyclic compounds are also known as carbocyclic compounds or isocyclic compounds as their rings are formed with only one type of atoms, mainly carbon. Homocyclic compounds can be further classified into alicyclic compounds and arenas or aromatic compounds while Heterocyclic compounds are the cyclic compounds in which the rings contain at least two different types of atoms (including a carbon atom). The atoms other than the carbon atoms present in the ring are known as heteroatoms .

An example of homocyclic is Cyclopropenylidene and an example of heterocyclic is Thiamine.

***QUESTION 2***

1. Solvent front = 12.2cm

Band A = 2.4 cm

Band B = 5.6 cm

Band C = 8.9 cm

R*f* = (band x)cm/(solvent front)cm

R*f* of band A= 2.4cm/12.2cm = 0.196

R*f* of band B= 5.6cm/12.2cm = 0.45

R*f* ofband C=8.9cm/12.2cm =0.72

1. Since substance A gave a positive result by producing a dark grey precipitate to Tollens test, It is an aldehyde. Substance B decolourized bromine therefore it is an unsaturated compound. Either an alkene or alkene.
2. It is employed for aldehydes and ketones.

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| Functional groups | Examples |
| Alkane | Methane (CH4) |
| Alkene | But-1-ene (C₄H₈) |
| Alkyne | Propyne(CH₃C≡CH) |
| Alkanol | 1-pentanol (C₅H₁₁OH) |
| Alkanone | Butanone (CH₃CCH₂CH₃) |
| Aldehyde | Propanal (CH₃CH₂CHO) |
| Carboxylic acid | Propanoic acid ( C₂H₅COOH) |