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17/ENG04/019
ELECTRICAL ELECTRONICS ENGINEERING
CHEM 102 ASSIGNMENT

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

Answer

C_7H_7N

1.b What are the importance of organic compounds

Answers

-In proteins: One type of organic molecule that must be present in every human's diet is protein. Proteins are composed of chains of organic molecules called amino acid.

-They are used to clear of impurities like in drug extraction from plants,the fatty matter from the pulp is removed using petroleum ether.

- Organic compounds like Diamonds,Graphite,Petroleum e.t.c are found to be highly valuable,durable and hardest in the world. Diamond and Graphite are both pure carbon compounds without any other elements inside. They are both highly used and expensive while petroleum in the other most valued resources on the earth for fuels need in the world.

1.c Differentiate between homocyclic and heterocyclic compounds.

HOMOCYCLIC COMPOUNDS	HETERCYCLIC COMPOUNDS
Their rings are formed with only one type of atom.	Their rings are formed with at least two types of atoms.
They have 100%carbon atoms in the ring.	They have mainly carbon and in addition, heteroatoms such as nitrogen, oxygen and sulphur are found in their ring.

QUESTION 2

A.)If the distance of the solvent front is 12.2 cm, 2.4cm, 5.6cm and 8.9cm are distances of the different bands respectively. Calculate the retardation factor of the available bands.

Answer

Let the distance of the bands be A ,B and C

Hence:

Distance moved by the band A=2.4cm

Distance moved by the band B=5.6cm

Distance moved by the band C=8.9cm

Distance of the solvent front=12.2m

R_F for A = $\frac{\text{Distance moved by the band A}}{\text{Distance moved by the solvent front}} = \frac{2.4\text{cm}}{12.2\text{cm}} = 0.1967 = 0.2$

R_F for B = $\frac{\text{Distance moved by the band } \mathbf{B}}{\text{Distance moved by the solvent front}} = \frac{5.6\text{cm}}{12.2\text{cm}} = \frac{5.6\text{cm}}{12.2\text{cm}} = 0.7295 = 0.7$

R_F for C= $\frac{\text{Distance moved by the band C}}{\text{Distance moved by the solvent front}} = \frac{8.9}{12.2} = 0.73\text{cm}$

B.)Two organic compounds were labelled A and B. A gave a positive test result(dark grey precipitate) to tollens test and B decolourizes Bromine water. Suggest the family to which these organic compounds belong.

Answers

The organic compound of A is an Aldehyde compound and the organic compound of B is an Alkene compound.

C.) 2,4-dinitrophenylhydrazine test is employed for Aldehydes and Ketones.

D.) List 7 functional groups giving two examples of organic componds giving two examples each.

ORGANIC COMPOUNDS	**FUNCTIONAL GROUPS**	**EXAMPLES**
Alkyl halide	-F -Cl -Br	CH_3Cl C_2H_5CL
Alcohol	-OH	CH_3OH C_2H_5OH
Ether	R-O-R	CH3OC2H5 C2H5OC2H5

Alkanal	-COH	CH_3CHO C_2H_5CHO
Ketone	R-CO-R	$CH_3(C=O)CH_3$ $C_2H_5(C=O)C_2H_5$
Carboxylic acid	-COOH	HCOOH CH_3COOH
amines	-NH2	CH_3NH_2 $C_2H_5NH_2$