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Medical Laboratory Science

1a) Given (M/Z) = 105

Maximum carbon atom = $105/12 = 8.75$ or 9

Since the mass per charge ratio is odd it is possible for oxygen to be present in the compound.

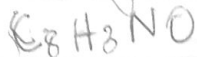
$C_n H_y N$ then taking the carbon atoms to be 7

$$105 - (84 + 14) = 7$$

Compound 1 $\rightarrow C_7 H_7 N$

$$IMD = (2 \times 7) + 2 - 7 + 1/2 = 5$$

Removing 4 atoms of hydrogen and one atom of oxygen



$$IMD = (2 \times 7) + 2 - 3 + 1/2 = 7$$

b) Organic compounds are important because all living organisms contain carbon

c) Homocyclic compounds

- They contain only one type of atom including itself

Heterocyclic compounds

They contain at least different type of atoms

$$2a) \frac{\text{Distance moved by substance}}{\text{distance moved by solvent points}} = \frac{2.4}{12.0} = 0.20$$

$$u) \frac{\text{distance moved by substance}}{\text{distance moved by solvent points}} = \frac{5.6}{12.0} = 0.5$$

L7/MTS06/059

no distance moved by substance = $\frac{89}{128} = 0.7$
distance moved by solvent front

- b A: Aldehyde (alkanal)
B: unsaturated hydrocarbon
C: Aldehydes & ketones

- 3 R-X - Alkyl halides; $\text{CH}_3\text{CH}_2\text{Br}$, CH_3Cl
R-COOR - Ester; $\text{CH}_3\text{CH}_2\text{COOCH}_3$, $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOCH}_3$
ROH - Alcohol; CH_3OH , $\text{CH}_3\text{CH}_2\text{OH}$
RCHO - Alkanal; CH_3CHO , $\text{CH}_3\text{CH}_2\text{CHO}$
RCOOH - Alkanoic acid; CH_3COOH , $\text{CH}_3\text{CH}_2\text{COOH}$
RNH₂ - Amine; CH_3NH_2 , $\text{CH}_3\text{CH}_2\text{NH}_2$
R-CO - Acetone; CH_3CO , $\text{CH}_3\text{CH}_2\text{CO}$
RCOx - Acidic halides; CH_2COCl , $\text{CH}_3\text{CH}_2\text{COBr}$
RCONH₂ - Amide; CH_3CONH_2 , $\text{CH}_3\text{CH}_2\text{CONH}_2$