

1b) Importance of organic compound

- i. Production of food e.g. Carbohydrates sugar
- ii. Production of clothes e.g. Nylon
- iii. Production of Medicine/Drugs e.g. penicillin
- iv. Production of Insecticides
- v. Production of dye
- vi. Production of Explosives
- vii. Production of Fuel
- viii. Production of household and other common articles e.g. soap

1c) Homocyclic Compound :- These are compounds which consists of atoms belonging to the same element preter with the ring of a cyclic compound

Heterocyclic Compound :- These are compounds which consists of atoms of both carbon and any other element present

1a) Fragment at $m/z = 105$

If the mass of the molecular ion is odd it contains at least one nitrogen $n = 14$ atoms

$$105 - 14 = 91$$

Determine max nC's

$$91/12 = 7.5 \quad C_7HN?$$

Add enough H's to make up the rest of the mass

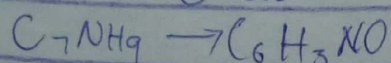
$$7 \times 12 = 84$$

$$1 \times 14 = 14$$

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

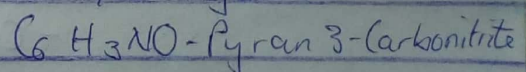
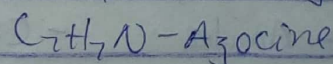
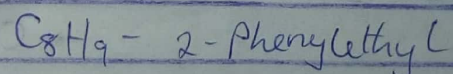
7H's gives C_7NH_7

Add an O atom



$$\frac{(2(6.5)) + (2-3)}{2} = 5.5 \sim 6$$

2



2a.) Retardation factor (R_f) = $\frac{\text{Distance moved by Band}}{\text{Distance moved by solvent front}}$

$$\text{Distance 2.4cm } R_f = \frac{2.4}{12.2} = 0.197 \sim 0.20$$

$$\text{Distance 5.6cm } R_f = \frac{5.6}{12.2} = 0.459 \sim 0.50$$

$$\text{Distance 8.9cm } R_f = \frac{8.9}{12.2} = 0.729 \sim 0.73$$

2b.) Compound A - Aldehydes, ketones and Terminal Alkynes
Compound B - Unsaturated compound i.e Alkene

2c.) 2,4 Dinitrophenylhydrazine test is employed for identification of aldehydes and ketones

2d.) Functional groups and examples:-

i.) Alkanoic Acid - CH_3COOH Ethanoic Acid
- $\text{C}_3\text{H}_7\text{COOH}$ Butanoic Acid

ii.) Alkanol - CH_3OH Methanol
- $\text{C}_2\text{H}_5\text{OH}$ Ethanol

iii.) Alkyl-Halide - CH_3Cl Chloromethane
- $\text{C}_3\text{H}_7\text{Br}$ Bromopropane

iv.) Alkanal - CH_3CHO Ethanal
- $\text{C}_2\text{H}_5\text{CHO}$ Propanal

v.) Esters - $\text{C}_2\text{H}_5\text{COOCH}_3$ Methylpropanoate
- $\text{C}_3\text{H}_7\text{COOC}_2\text{H}_5$ Ethylbutanoate

vi.) Ketones/Alkanones - CH_3COCH_3 Propan-2-one
- $\text{CH}_3\text{COCH}_2\text{CH}_3$ Butan-2-one

vii.) ~~Ethers~~ Amides - CH_3CONH_2 Acetanide
- $\text{C}_2\text{H}_5\text{CONH}_2$ Propanamide