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1. M/Z=105, when mass to charge ratio is an odd number nitrogen is attached.

C7H7Nand C6H5CO.

(12\*7) + (7\*1) + 14=105

1b. IMPORTANCE OF ORGANIC COMPOUNDS

1. Organic compounds such as protein, lipids and carbohydrates are necessary to maintain biological processes such as respiration, metabolism and circulation in the blood.
2. Crude fuel which is a hydrocarbon and also refined in gasoline, propane, diesel, kerosene, etc. are used in heating systems and cars.
3. Lipids which are substances of biological origin that are soluble in solvent are used also in cosmetics industries, food industries as well as in nanotechnology.
4. Protein, a chain of organic molecules called amino acids can be used in soap production.
5. Nucleic acids are essential biopolymers for all life forms which includes the DNA.

1c.

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| HOMOCYCLIC COMPOUNDS | HETEROCYLIC COMPONDS  |
| 1. Homocyclic compounds contains only carbon atoms in their rings.
2. Subdivided into alicyclic homocyclic and aromatic homocyclic
3. Examples includes Phenol, toluene, naphthalene and anthracene.
 | 1. Heterocyclic compound rings contain two types of atoms including carbon.
2. Subdivided into alicyclic heterocyclic and aromatic heterocyclic.
3. Examples includes Tetrahydrofuran, piperidine, furan and pyrrole.
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2a. Solvent front distance=12.2cm

Distance of Band A =2.4cm

Distance of band B=5.6cm

Distance of band C=8.9cm

Retardation factor =Distance moved by band ∕Distance moved by solvent front

Rf of Band A= 2.4/12.2=0.196=0.20

Rf of band B= 5.6/12.2=0.45

Rf of band C=8.9/12.2=0.72.

2b. A is an ALDEHYDES

B is an ALKENE

2c. 2,4-Dinitophenylhydrazine test is for ketones and aldehydes.

2d.

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| FUNCTINAL GROUP | EXAMPLES |
| 1. Alkanols (ROH)
2. Carboxylic acid (RCOOH)
3. Alkanals/Aldehyde (-COH)
4. Alkanones/Ketones(-C=O)
5. Esters(-RCOOR’)
6. Amines(-NH2)
7. Amide(RCONH2)
 | 1. Ethanol, propanol etc.
2. Methanoic acid, Ethanoic acid etc.
3. Ethanal, butanal etc.
4. Propanone, butanone etc.
5. Ethylethanoate, methylpropanoate etc.
6. Methylmethamine, ethanamine etc.
7. Methanamide, Ethanamide etc.
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