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Question 1

A M/Z 105This is an ODD molecular ion which means it must contain an N atom.

Therefore, I did the following:

105-14 = 91

91/12 = 7remainder7

Therefore, a possible molecular formula is C7H7N

B It is important in fuels eg coal, wood, natural gas

 It can also be used as dyes eg Indigo, Malachite green

 It can also be used in medicine in the production of drugs eg penicillin, aspirin and morphine

 It is also used in the manufacturing of the clothes we put on be it cotton, synthetic, nylon.

C

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| HOMOCYCLIC COMPOUNDS | HETEROCYCLIC COMPOUNDS |
| Homocyclic Compound ring contains only one types of atom. | Heterocyclic Compound ring contains at least two different types of atoms including carbon. |
| Homocyclic Compounds have 100% carbon atoms in their ring. | Heterocyclic Compounds have mainly carbon and, in addition, heteroatoms such as nitrogen, oxygen, and sulphur are found in their ring.  |
| Examples include: Phenol, Toluene, Naphthalene, and Anthracene | Examples include: Tetrahydrofuran, Piperidine, Pyridine, Furan, and Pyrrole |

Question 2

1. Retardation factor= distance moved by substance(cm)

 distance moved by solvent (cm)

Solution Distance moved by solvent= 12.2cm

A) 2.4(cm) B) 5.6(cm) C) 8.9(cm)

 12.2(cm) = 0.196 12.2(cm) = 0.459 12.2(cm) =0.729

B) Organic compound A is in the alkanal family

 Organic compound B is in the alkene family

C) 2,4-Dinitrophenylhydrazine test is employed for identification of aldehyde and ketone

D)

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| Functional group | Examples |
| -OH | Butanol, 1,2,3-propan-tri-ol |
| - | Ethane, Butane |
| -COH | Ethanal, Butanol |
| -NH2 | Methylamine, phenylamine |
| -CL, -F | 2-chloropentane, 3,3-trichloro butane |
| -COOH | Benzoic acid, ethanedioc acid |
| R | Butyl, Ethyl |