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COLLEGE: SCIENCES

DEPARTMENT: GEOLOGY

QUESTION 1

1. Since the molecular formula is odd, it has the element nitrogen in it.

105 – 14 = 91

Since it’s an organic compound, it contains carbon

91/12 = 7

C7H?N = 105

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

84 + 14 + H = 105

98 + H = 105

H = 105 – 98

H = 7

Therefore a possible formula could be C7H7N

Taking away CH4, another possible formula could be C6H3ON

Therefore the two possible formulas for a molecular ion of 105 are C7H7N and C6H3ON.

1. i) It is important in food because the food we eat is essentially a mixture of organic compounds.

ii) It is used in the production of clothes.

iii) It is used in the production of fuel.

iv) It is used in the production of medicine.

v) It is used in the production of explosives.

vi) It is used in the production of dyes.

vii) It is used in the production of insecticides

1. Homocyclic compounds are cyclic compounds in which all the ring atoms are the same while heterocyclic compounds are compounds in which the include at least one atom of an element different from the rest.

QUESTION 2

1. rf of first band =$\frac{2.4cm}{12.2cm}$

 = 0.19

rf of second band = $\frac{5.6cm}{12.2cm}$

 = 0.45

rf of third band = $\frac{8.9cm}{12.2cm}$

 = 0.72

B. A belongs to functional group alkanals/aldehydes

 B belongs to functional group alkenes.

C. Ketones and aldehydes

D. 1. Alkanes e.g. propane, butane

2. Alkenes e.g. ethene, propene

3. Alkynes e.g. propyne, ethyne

4. Alkanol e.g. methanol, ethanol

5. Alkanone e.g. propanone, butanone

6. Alkanal e.g. methanol, ethanal

7. Alkanoic acid e.g. ethanoic acid, propanoic acid

8. Esters e.g. propyl ethanoate, methyl butanoate