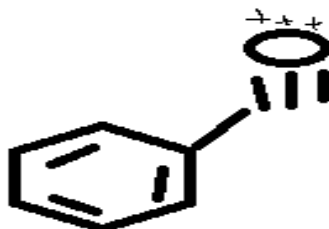


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QUESTION 1



A. Fragment at $m/z = 105$

$$N=14\text{amu. } 105-14=91$$

$$91/12 = 7.5\text{-----}C7NH?$$

$$7*12 = 84$$

$$1*14 = 14$$

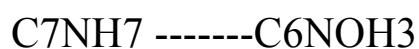
$$105 - (84+14) = 7$$

So therefore 7 hydrogen's gives $C7NH7$

Therefore... $(2n + 2 - \text{no of hydrogen})/2$

$$[2(7.5)+2-7]/12= 5.25$$

Then add an oxygen atom



$$[(2(6.5)+2-3)/2]=5.5$$

B.– Organic compounds are important because they serve as the basic form of all carbon bases for life on earth.

- Create energy production in biological life
- Causes atmospheric depletion and releases hydrocarbon energy

- Organic compounds have versatile bonding patterns and are part of all organisms
- Long carbon chain can be produced
- Will bond with many other elements
- Can form single, double and triple bonds
- A huge number of carbons is produced
- Organic compounds form stable bonds to other carbon atoms- (catenation).

C.

Homocyclic	Heterocyclic
They are cyclic compounds having atoms of the same element as ring members	They are cyclic compounds having atoms of different elements as ring members including carbon atoms
Ring contains atom of the same element	Ring contains atoms of different elements
Contains atoms of the same element bonded to each other containing a ring	Contains atoms of at least two different element bonded to each other forming a ring
Examples include: benzene, cyclohexane, toluene, cyclohexanol	Examples include: pyran, azocibe, thiocane etc.

QUESTION 2

- a) R.f of the first band = $2.4/12.2 = 0.19 \approx 0.2$.
 R.f of the second band = $5.6/12.2 = 0.45 \approx 0.5$.
 R.f of the third band = $8.9/12.2 = 0.729 \approx 0.73$.
- b) A- belongs to the family of the aldehyde, aromatic aldehyde and alpha hydroxyl ketone functional groups

B- belongs to the alkene or alkyne family.

c) Brandy's test 2,4- Dinitrophenylhydrazine can be used to qualitatively detect the carbony functionality of a ketone or aldehyde functional group.

d)

<u>Organic compounds</u>	<u>F u n c t i o n a l group</u>	<u>example</u>
1. <u>Alkanes</u>	RH	CH ₄ - methane C ₂ H ₆ - propane
2. Alkenes	RR' C=CR ₂ R ₃ CH ₃	CH ₂ =CH ₂ - ethylene CH ₂ =CH- propene
3. Alkynes	RIC≡CR ₂	HC≡ CH- acetylene CH ₃ C ≡ CH HC≡ CH- propene
4. Alcohols	ROH	CH ₃ OH- methanol C ₂ H ₅ OH- ethanol
5. Alkyl halides	RX	CHCl ₃ - chloroform C H 2 C L 2 - dichloromethane
6. Aldehyde	RCHO	CH ₃ CHO- ethanal CH ₂ O- methanal
7. Carboxylic acid	RCOOH	CH ₃ COOH- ethanoic acid HCOOH- formic acid