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COLLEGE: ENGINEERING

MATRIC NO: 17/ENG02/063

DEPARTMENT: COMPUTER ENGINEERING

QUESTION 1

A. Fragment at m/z =105

 N=14amu. 105-14=91

 (91/12) = 7.5---------C7NH?

 (7\*12) = 84

 (1\*14) = 14

 105 - (84+14) = 7

 ...7 hydrogen's gives C7NH7

Therefore... (2n +2 -no of hydrogen)/2

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

Then add an oxygen atom

C7NH7 -------C6NOH3

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

B.– Organic compounds are important because they serve as the basis for all carbon bases.

* Organic compounds have versatile bonding patterns and are part of all organisms
* Long carbon chain can be produced
* Organic compounds will bond with many other elements.e.g Br
* Organic compounds can form single, double and triple bonds.
* Organic compounds form stable bonds with other carbon atoms.

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, cyclobutane | Examples include: pyran, azocibe. |

QUESTION 2

1. Retardation factor of the first band = (2.4/12.2)= 0.19

Retardation factor of the second band= (5.6/12.2)=0.45

Retardation factor of the third band= (8.9/12.2)= 0.729

1. A- belongs to the family of the aldehyde, aromatic and alpha hydroxyl ketone functional groups

B- belongs to the alkyne or alkyne family.

1. Brandy’s test 2,4- Dinitrophenylhydrazine can be used to qualitatively detect the carbon functionality of a ketone functional group or aldehyde functional group.
2.

|  |  |  |
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| Organic compounds  | Functional group | example |
| 1. Alkanes
 | RH | C2H6- ethaneC5H12- pentane |
| 1. Alkenes
 | RR’C=CR2R3CH3 | CH2=CH2- ethyleneCH2=CH2- propene |
| 1. Alkynes
 | RIC≡CR2 | CH3 C ≡ CH HC≡ CH- propene |
| 1. Alcohols
 | ROH | C3H8OH- PropanolC2H5OH- ethanol |
| 1. Alkyl halides
 | RX | CHCL3- chloroformCH2CL2- dichloromethane |
| 1. Aldehyde
 | RCHO | C5H11CHO- hexanalCH2O- methanal |
| 1. Carboxylic acid
 | RCOOH | CH3COOH- ethanoic acidHCOOH- formic acid |