IGWE GIFT

17/MHS01/150

MEDICINE AND SURGERY

CHEMISTRY ASSIGNMENT

QUESTION 1.

1. If m/z 105 contains 1 nitrogen atom

105 - 14 = 91

Number of carbon atoms in m/z 105; 91/12 = 7 remainder 7

Possible formula 1 = C7H7N

Following nitrogen rule when nitrogen atoms for molecular ions is odd

If m/z 105 contains 3 nitrogen atoms; 105-3\*14 = 63

Number of carbon atoms: 63/12 = 5 remainder 3

Possible formula 2 = C5H3N3

b. The importance of organic compounds are:

(i) They can be used in nucleic acids: They are essential biopolymers for all life forms, they are composed of mainly coal and hydrogen, they create and encode and store information in the nucleus of all living cells.

(ii) They are the basis of food: All the food we consume is reconstituted material and extracts of plants or animals.

(iii) It is used in metabolism:this reaction allows organisms allow organisms to grow and reproduce, maintain their structures, and respond to the environment.

(iv)they make up hydrocarbons: they are the primary source of energy for most civilians.

(v) They are used in protein: proteins are made up of organic molecules called amino acid.

c. The difference between homocyclic and heterocyclic compounds are

homocyclic compounds are molecules that contain ring structures or consists only of carbon atoms within the rings. An example is benzene. While heterocyclic compounds are compounds in which the ring contains at least two different type of atoms including the carbon atom. An example is tetrahydrofuran.

QUESTION 2

a If the distance moved by the solvent is 12.2cm and the distance moved by substance A is 2.4cm, substance B is 5.6cm and substance C is 8.9cm, the retardation factor formula is distance moved by substance/ distance moved by solvent .

For substance A : distance moved by substance / distance moved by solvent

Retardation factor=2.4/12.2

=0.197cm

For substance B : distance moved by substance / distance moved by solvent

Retardation factor= 5.6/12.2

=0.459cm

For substance C: distance moved by substance/ distance moved by solvent

Retardation factor= 8.9/12.2

=0.729cm

B . Compound A was found to be an Aldehydes or ketones

Compound B was found to be an Alkane.

C . 2,4 DNP Dinitrophenylhydrazine test was employed to test for Aldehydes and Ketones.

D . The seven functional groups are:

( I) Alkanes : methane, butane

(ii) alkenes: ethene, hexene

(iii) alkynes: ethyne, butyne

(iv) Alkanols: propanol, butanol

(v) Alkanoic acids: pentanoic acid, methanoic acid

(vi) Alkanals/Aldehydes: ethanal, butanal

(vii)Amines: methylamine, ethylamine