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MATRIC NO:17/SCI05/002

COLLEGE:SCIENCES

DEPARTMENT:MICROBIOLOGY

COURSE:CHEM 102

1a)The rule of 13 states that the formula of a compound is a multiple N of 13(the molar mass of CH)+ a remainder r.

i)According to the rule of 13:n=molecular ion/13

CnHn+r

If you have interactions, you adjust the formula;

\*for O, add O and subtract CH4

\*for N, add N and subtract CH2

\*for Cl, add Cl and subtract C2H11

Therefore molecular ion=105

1b)

i)Organic compounds have versatile bonding patterns and are part of all organism.

ii)Carbohydrate is a biological molecule consisting of carbon, hydrogen and oxygen and carbohydrate plays an important role in living organisms.

iii)Organic compounds make up a large portion of the human diet and are found in all food consumed by an individual. It required a large number organic molecules needed to keep cells and keep tissues healthy.

iv)Hydrocarbons are the primary source of energy for meet countries today. The prominent use of hydrocarbon is as a source of fuel. In their solid form ,hydrocarbons can take the form of asphalt.

v)Lipids consist of 8 group of molecules that occur in nature like fats, waxes ,sterols, monoglycerides and triglycerides e.t.c The main functions of lipids include storing energy and acting as a structural component of all membranes.

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| ASSIGNMENT |

1c)

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|  | Homocyclic | Heterocyclic |
| Properties | Their ring contains only one type of atom(main difference) | Their ring contains atleast two different types of atoms including carbon |
| Atomic composition of the ring | They have 100% carbon atoms in their ring | They have mainly carbon atom in addition, heteroatoms, such as ;nitrogen, oxygen ,and sulphur are found in their ring. |
| Sub-divisions | Alicyclic homocyclic and Aromatic homocyclic | Alicyclic heterocyclic and Aromatic heterocyclic |
| Examples | Phenol, toluene, naphthalene and arothracene | Tetrahydrofuran, piperidine, pyridine and pyrrole |

2a)Retardation factor=distance moved by substance/distance moved by solvent font

Rf1=2.4/12.2=0.197

Rf2=5.6/12.2=-0.459

Rf3 =8.9/12.2=0.730

2b)A belongs to the aldehyde family

B belongs to the alkene family

2c)Ketone and aldehyde

2d)Alkane-butane ,methane(R(CH2)

Alkene- ethene, propene(R2C=CR2)

Alkyne-propyne, butyne

Alkanol-ethanol,hexanol(ROH)

Alkanal-propanal, pentanal(RCHO)

Alkanoic acid-ethanoic acid, propanoic acid(RCOOH)

Alkyl halide-ethyl bromide, propyl fluoride(RX)