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MATRIC NO: 17/MHS05/018

DEPARTMENT: PHYSIOLOGY

COURSE CODE: CHM 102

1a. Suggest possible formulas for a molecular ion (m/z) of 105

Max number of carbon atoms = 105/12= 8.75=9

1. C8H9 (2X8)+2-9 = 4.5

2

1. C7H5O (2X7)+2-5 =5.5

2

1. C6HO2 (2X6)+2-1 = 6.5

2

B(i) Organic compounds are important because they serve as the basis of all carbon-based life on Earth, and all elements contain organic compounds (ii) Organic compounds also create energy production in biological life, depletion of the atmosphere and release energy from hydrocarbons. (iii) It forms amino acids and other elements necessary to maintain various biological processes such as metabolism, respiration and circulation in the blood. (iv)Organic compounds make up organic molecules which are required in large number to keep cells and tissues healthy (v) Through the maintenance of the biological processes such as metabolism it helps in the decomposition of organic matter and the breakdown of glucose and also the construction of components of cells such as proteins and nucleic acids.

C.

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| HOMOCYCLIC  COMPOUNDS | HETEROCYCLIC  COMPOUNDS |
| 1. Its ring is made up of carbon atoms only. | 1. Its rings is made up of more than one type of atom. |
| 2. They are classified into aromatic and alicyclic | 2. They are classified into aromatic and aliphatic |
| 3. Examples are Phenol, Toluene, Naphthalene, and Anthracene | 3. Examples are Tetrahydrofuran, Piperidine, Pyridine, Furan, and Pyrrole |

2

1. Retardation factor= Distance made by bands

Distance of solvent fronts

RF of band A = 2.4cm/12.2cm=0.197

RF of band B = 5.6cm/12.2cm =0.459

RF of band C = 8.9cm/12.2cm =0.730

1. Alkenes

C. 2, 4-Dinitrophenylhydrazine test can be used to detect or test for carbonyl groups associated with ketones and aldehyde functional groups

D.

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| FUNCTIONAL  GROUP | EXAMPLES |
| 1. Alkene | Pentene, Butylene |
| 2. Aldehyde | Acetaldehyde (ethanal), Tolualdehyde. |
| 3. Alcohol | Methanol, Ethanol |
| 4. Alkyl Halide | Methyl chloride, Butyl bromide |
| 5. Ester | Ethyl Propanoate, Propyl Methanoate |
| 6. Amide | Dimethylamide, acetamide |
| 7. Phenol | Salicylic acid, Quercetin |