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**Mechanical** **ENGINEERING**

**17/ENG06/011**

**QUESTION 1**

1. C3H7NO3  , C3H6NO2 , C3H5SO2  , C7 NH7 ,C6H3NO .

1. i) Organic compounds are used for the production of food and drug substances.

ii) They are used as automobile gasoline.

iii) They are used as cooking fuels.

iv) They are used in creating energy production in biological life, depletion of the atmosphere.

v) Carboxylic acids are used to make varieties of chemicals including pharmaceuticals

1. Homocyclic compounds have atoms of the same element as ring members while heterocyclic compounds have atoms of different element as ring members including carbon atoms.

**QUESTION 2**

**A.** RF value for first band = 2.4/12.2 = 0.197

 RF value for second band = 5.6/12.2 = 0.459

 RF value for third band = 8.9/12.2 = 0.730

**B.** compound A belongs to the aldehyde group while compound B belongs the ketone group

**C.** 2, 4-dinitrophenylhydrazine test is employed for the qualitative test for carbonyl groups associated with aldehydes and ketones.

**D.**

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| **FUNCTIONAL GROUP** |  **EXAMPLES**  |
| ALKANE | METHANE($CH\_{4}$ ), ETHANE ($C\_{2}H\_{6}$) |
| ALKENE | ETHENE($C\_{2}H\_{4}$), PENTENE($C\_{5}H\_{10}$) |
| ALKANOL | ETHANOL($C\_{2}H\_{5}OH$), PROPANOL($ C\_{3}H\_{7 }OH$) |
| ALKYNE | ETHYNE($C\_{2}H\_{2}$) , PROPYNE($C\_{3}H\_{4}$) |
| CARBOXYLIC ACID OR ALKANOIC ACID | ETHANOIC ACID($C\_{2}H\_{5 }COOH$), PROPANOIC ACID($C\_{3}H\_{7 }COOH$) |
| ALKANAL | ETHANAL($C\_{2}H\_{5 }COH$), PROPANAL($C\_{3}H\_{7}COH$ |
| ALKANOATE  | ETHANOATE($C\_{2}H\_{5}COO-$),PROPANOATE($C\_{3}H\_{7}COO-)$ |