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MECHANICAL ENGINEERING.

(b) Organic Compounds Importance

Organic compounds are used in the production of;

- (i) Food; Carbohydrates, proteins, Fats etc.
- (ii) Clothes; Cotton, silk, wool, Nylon etc.
- (iii) Fuels; Coal, wood, Natural gas, petrol.
- (iv) Medicines; Penicillin, Streptomycin, chloramphenicol etc.
- (v) Explosives; Nitroglycerine, Nitrocellulose etc.
- (vi) Insecticides; D.D.T, Gammaxane etc.
- (vii) Dyes; Indigo, Malachite green, Alizarin etc.
- (viii) Household and other common articles; Soaps, cosmetics, perfumes etc.

(c) Homocyclic Compounds are compounds which consist of atoms belonging to the same element present within the ring of a cyclic compound.

while

Heterocyclic Compounds are compounds which consist of atoms of both carbon and any other element present within the ring of a cyclic compound.

Q. 2 (a)

$$\text{Retardation factor (RF)} = \frac{\text{Distance moved by band}}{\text{Distance moved by solvent front}}$$

(i) Band (2.4 cm) ;  $RF = \frac{2.4 \text{ cm}}{12.2 \text{ cm}} = \underline{\underline{0.19672}}$

(ii) Band (5.6 cm) ;  $RF = \frac{5.6 \text{ cm}}{12.2 \text{ cm}} = \underline{\underline{0.45902}}$

(iii) Band (8.9 cm) ;  $RF = \frac{8.9 \text{ cm}}{12.2 \text{ cm}} = \underline{\underline{0.72951}}$

(b)

Allyl  $\rightarrow$  Organic Compound A belongs to  $\rightarrow$  Aldehyde family  
Organic Compound B belongs to  $\rightarrow$  Ketone family

(c) 2,4-Dinitrophenylhydrazine test is employed for identification of both Aldehydes and Ketones.

(d) (i) Alkyl Halide  $\rightarrow -F, -Cl, -Br$

(ii) Esters  $\rightarrow -\overset{\text{OH}}{\underset{\text{H}}{\text{C}}}-\text{O}$

(iii) Alkanones  $\rightarrow -\overset{\text{O}}{\text{C}}=$

(iv) Alkanols  $\rightarrow -\text{OH}$

(v) Alkanals  $\rightarrow -\text{CHO}$

(vi) Alkanoic acid  $\rightarrow -\text{COOH}$

(vii) Ethers  $\rightarrow -\text{OR}$

### Examples

(i) (1) 3-bromo-1-propene (Allyl bromide) (2) cyclohexyl bromide

(ii) (1) Methyl ethanoate (2) Ethyl propanoate

(iii) (1) Propanone (2) Pentan-3-one

(iv) (1) Butanol (2) Cyclopentanol

(v) (1) Ethanal (2) Butanal

(vi) (1) Methanoic acid (2) 2-methylbutanoic acid

(vii) (1) 2-methoxy-2-methylpropane (2) diphenyl ether