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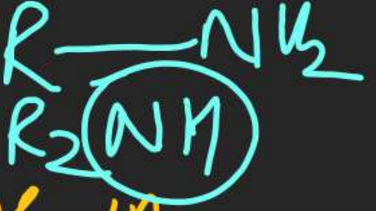
Note (i) Primy, Sec & Tertiary Acid Amides are diff. F groups.

(ii) ——— Amines ———

(iii) Alcohol & phenol are diff. F. groups



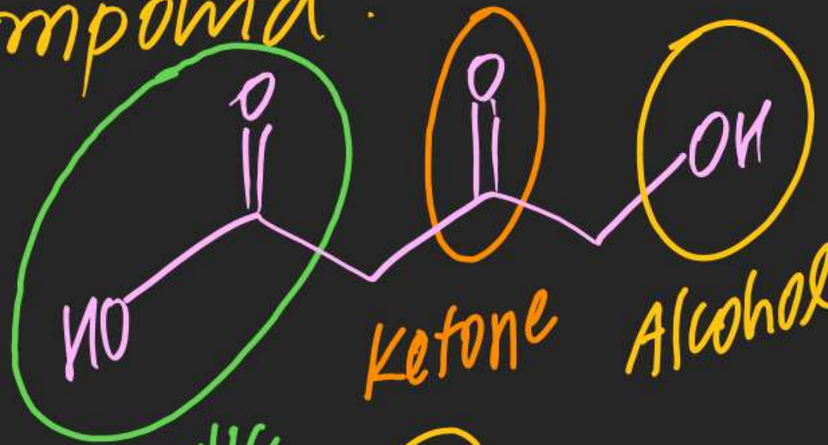
EX-1: Find Total No. of different functional groups in following Compound.

(1)

Alcohol, Ketone, Aldehyde

3

(2)



Carboxylic Acid, Ketone, Alcohol

3

(3)

Primy Amine, Alcohol, Sec. Amine

∴

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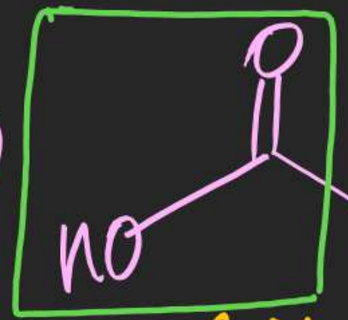
(4)

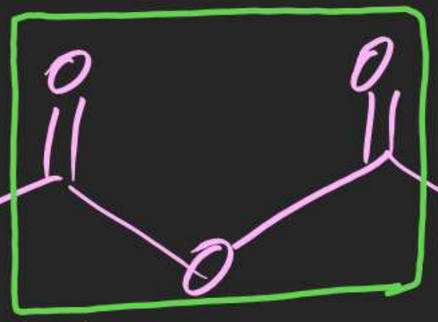


Carboxylic Acid

Ketone

5

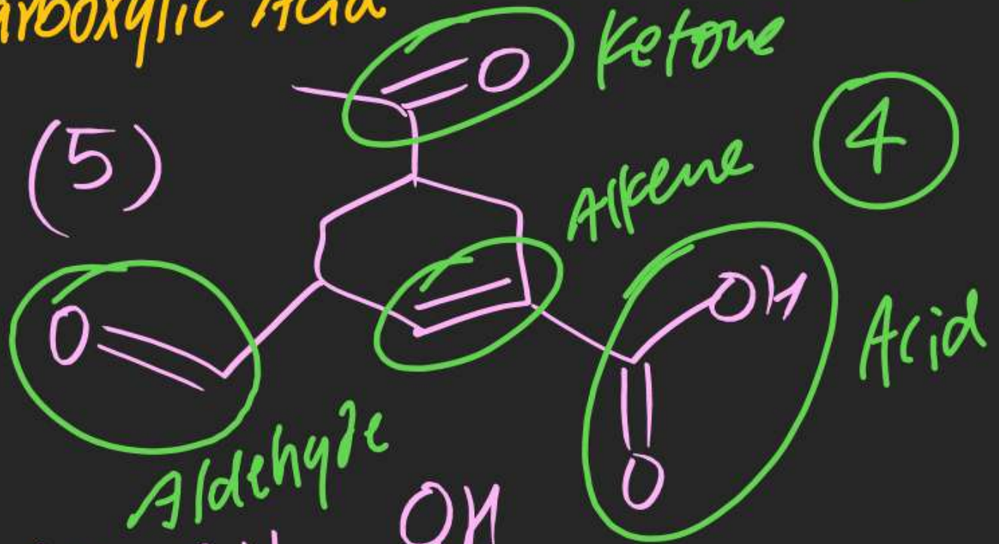
Ether



Acid anhydride

Ester

(5)



Ketone

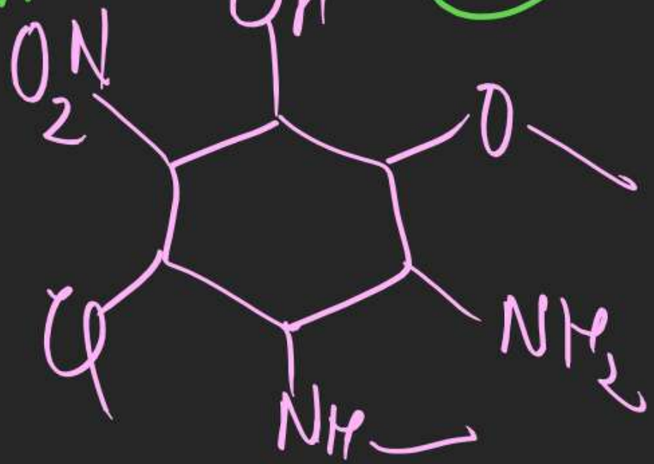
Alkene

4

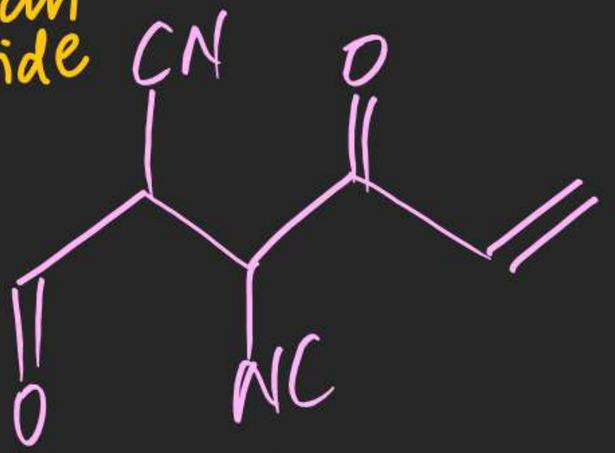
Acid

Aldehyde

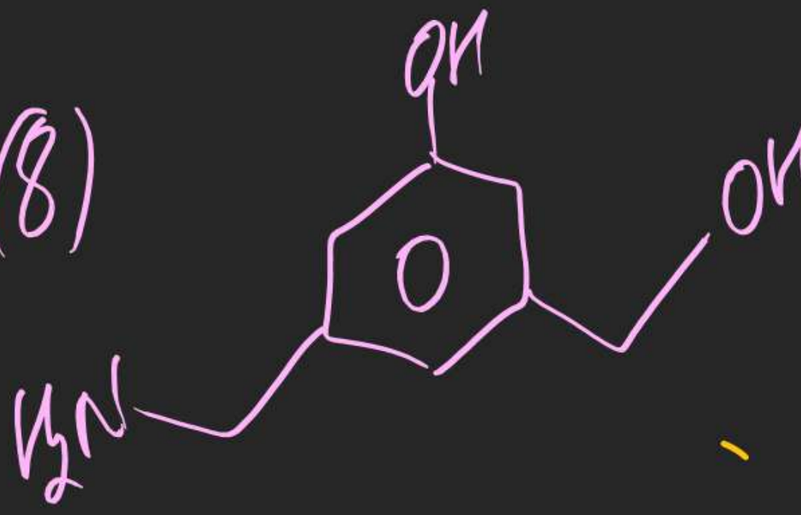
(6)



(7)



(8)



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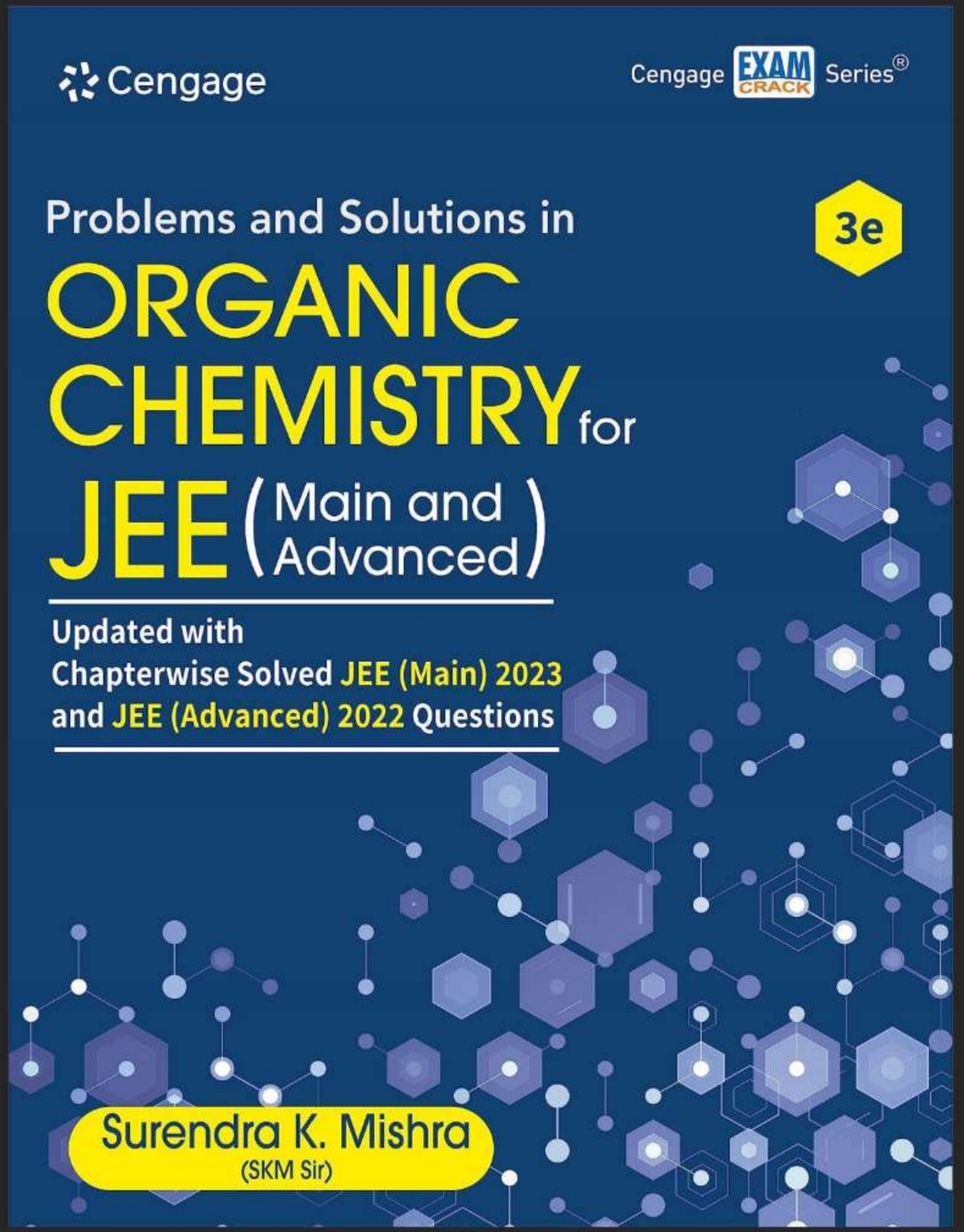

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Homologous Series :-

Collection of Compounds having same chemical properties & different physical properties are known as Homologous Series.

Ex :-

Alkane			Alcohol			Carboxylic acid	
C_nH_{2n+2}			$R-OH$			$R-COOH$	$C_nH_{2n+1}(COOH)$
CH_4			CH_3-OH			$H-COOH$	
CH_3-CH_3			H_3C-CH_2-OH		$C_nH_{2n+1}(OH)$	$H_3C-COOH$	
$CH_3-CH_2-CH_3$			$H_3C-CH_2-CH_2-OH$			H_3C-CH_2-COOH	
$CH_3-CH_2-CH_2-CH_3$			$H_3C-CH_2-CH_2-CH_2-OH$				

Physical properties ↑ Functional Group → Chemical properties

Note (i) All members of HS must have same functional group
(ii) Two consecutive member of HS differ by "CH_2" or 14 gm.

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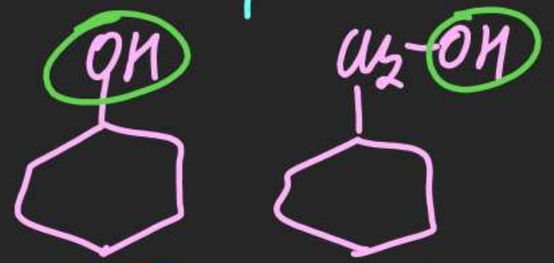
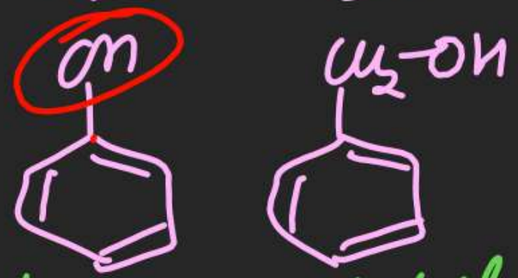
(iii) Each member of HS contains diff Physical properties

(iv) Homologues can be represented by same general formula

Ex: 

Homologues

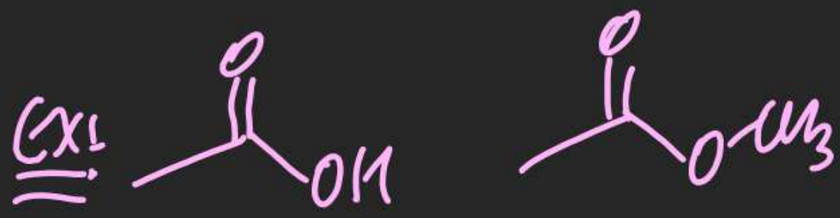
Ex: 

Not Homologues

Phenol Alcohol

Ex: CH_3-CH_2-OH $CH_3-CH_2-CH_2-CH_2-OH$

Ex: $CH_3-CH_2-NH_2$ $CH_3-CH_2-NH-CH_3$

Ex: 

Ex: 

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Classification Of Organic Compounds :-

- Open chain Compound or Acyclic Compound
  - Saturated Compound
  - Unsaturated Compound
- Closed chain Compound or Cyclic Compound
  - Carbocyclic Compound or Homocyclic Compound
    - Alicyclic Compound
    - Aliphatic Compound
    - Aromatic Compound
  - Heterocyclic Compound

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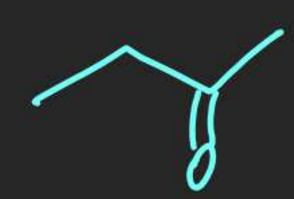
(#) Open Chain Compound/ Acyclic Compound:

⇒ Compounds having no any cyclic segments are known as open chain/Acyclic compound.

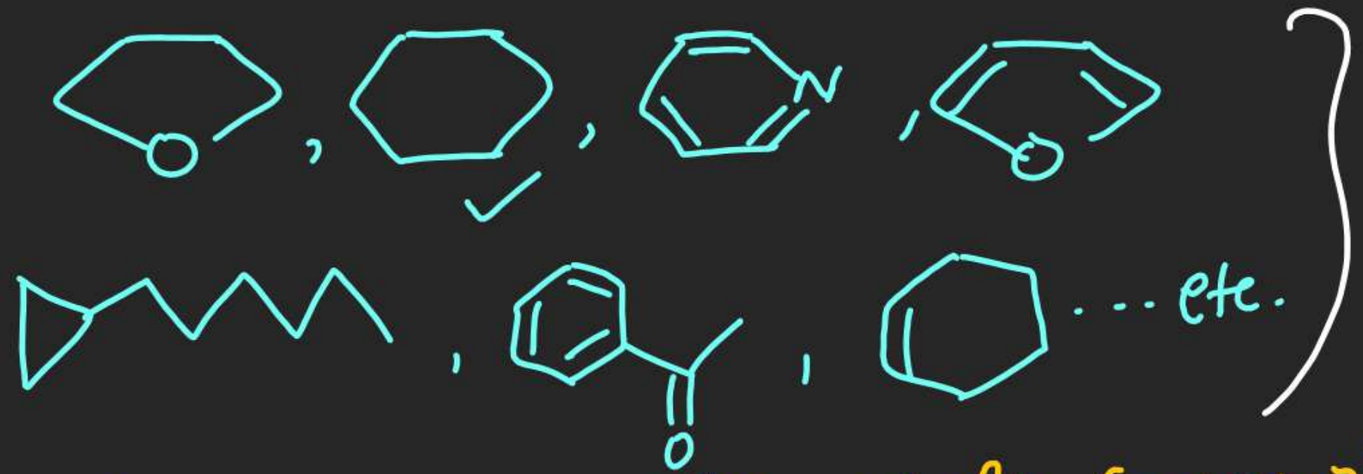
Ex-1: CH_3-CH_3,  , 

 ,  , 

(#) Cyclic Compound/ Closed chain Compound:

⇒ Compounds having at least one cyclic segment is known as closed chain/cyclic compound.

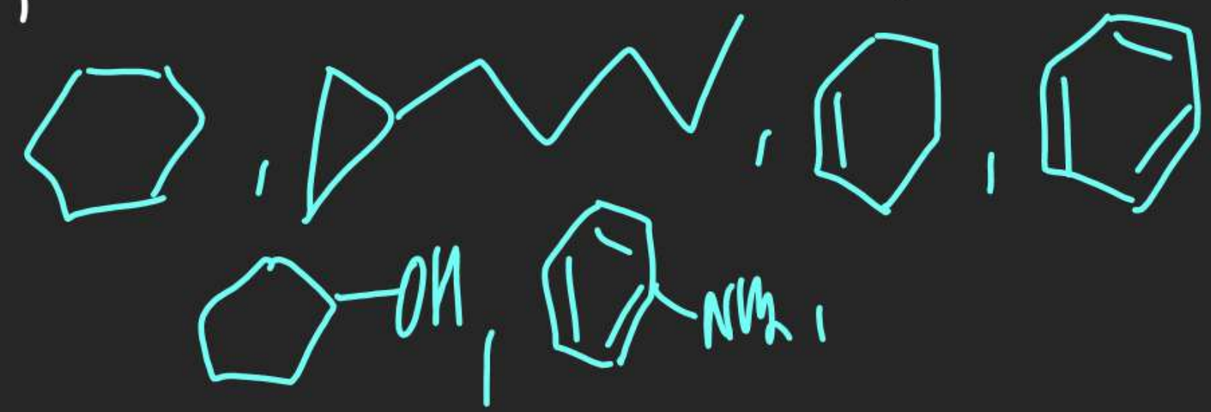
Ex:



(#) Carbocyclic Compound (Homocyclic Compound):

⇒ Cyclic Compounds having only Carbon atom in cyclic segment are known as Carbocyclic Compound.

Ex:



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(#) Hetrocyclic Compound :-

⇒ Cyclic Compounds having at least one lone pair atoms in Ring segment are known as hetrocyclic compound.

Ex :-

- - - - - - - - etc.

(#) Aromatic Compounds :-

⇒ Cyclic Compounds which are highly stable & having characteristic Aroma are known as Aromatic Compound

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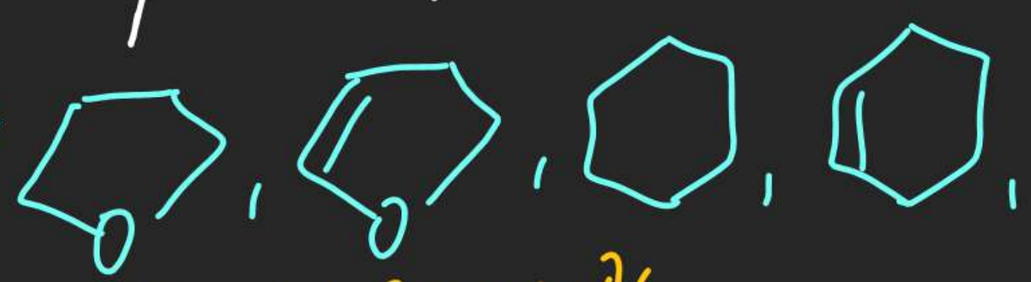
Ex!- 

(#) Alicyclic Compound:-

⇒ Cyclic compounds which are not Aromatic are known as Alicyclic Compound.

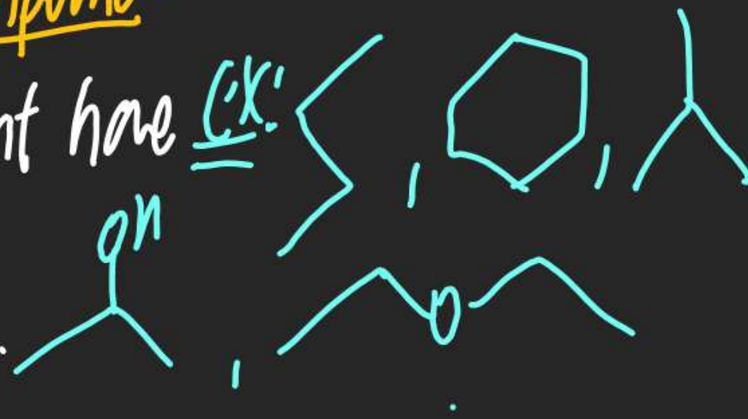
Ex!-  ----etc

(#) Unsaturated Compound:-

Compounds having π Bond are known as Unsaturated Compound. Ex!  , $HC \equiv C-CH_3$ ...

(#) Saturated Compound:-

⇒ Compounds dont have any π Bond.

Ex! 

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Nomenclature

There are various methods for nomenclature.

(i) IUPAC Nomenclature
(ii) Derived Nomenclature
(iii) Common name Nomenclature

IUPAC Nomenclature :-

International Union of Pure & Applied Chemistry

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IUPAC Name