27-6-24
Lec-1

Organic chemistry

9 lecture
10 page

Classification and Nomenclature of Organic ~~chemistry~~ compounds

1)1856 ✱ Firstly organic compounds are obtained from (Animals and plants).
But Inorganic compounds are obtained from mineral sources.

✱ Berzillius Vital force theory
Acc to Berzillius organic compounds have some mysterious force. (vital force).

✱ Wholer's synthesis
He synthesize 1st organic Compound Ureq from Inorganic Compounds.

$$NH_4CNO \xrightarrow[\text{(Rearrangement)}]{\text{Heat } \Delta} NH_2-\overset{O}{\overset{\|}{C}}-NH_2$$

Ammonium Cyanate. Ureq

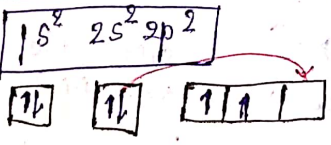
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✱ Acidic Acid is synthesise By (Kolbe's)
✱ Methan gas is synthesise By (Berthelot)

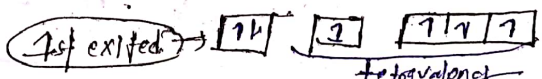
✱ In present days organic Compound Contains Carbon and Hydrogen [Hydrocarbon], Hydrocarbon derivatives.

✱ Carbon $\left[{}^{6}_{12}C\right]$

GS → $1s^2\ 2s^2\ 2p^2$



1st excited →



tetravalency

✱ Carbon is tetravalent.

✱ How to find (No of σ and π Bonds), (Hybridisation), (No of Bond angle)

Sr	Structure	σ	π	Hybridisation	BA	# of BO
①		4	0	sp^3	109°.28'	6
②		3	1	sp^2	120°	3
③	=C= or ≡C−	2	2	sp	180°	1

No of σ = (No of atom + Ring) − 1

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Types of Carbon and Hydrogen

(1) primary carbon [1° carbon]

• the carbon attached with one carbon or no carbon is k/a primary carbon.

(2) Secondary carbon [2° carbon]

• the carbon attached with 2 carbon or no carbon is k/a secondary carbon

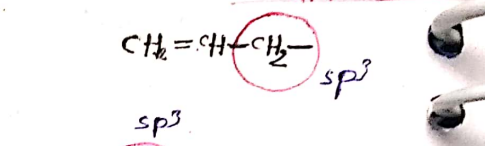
Neol 22 → 160

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Allylic and Benzylic and Nitrogen

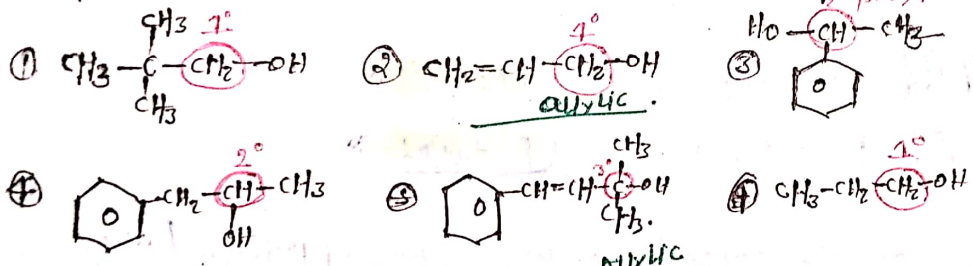
Allylic carbon → the sp^3 carbon attached to C=C is k/a allylic carbon.

Benzylic carbon → the sp^3 carbon attached to benzene.



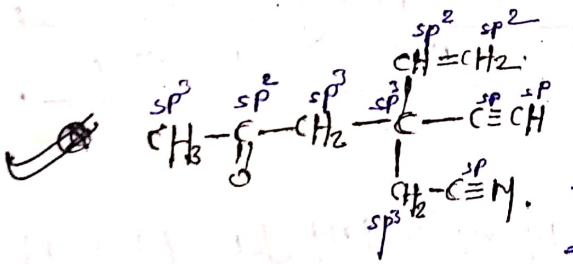
Q 7-1 (195)

(b) classify following as primary, 2ndary, Tertiary alcohol



1° alkane
1° alkene
2° alcohol
2° alkyl
3° alcohol
1° alkyl

allylic → 2/5
Benzylic → 3



total sp^3 C → (4)
sp^2 C → (3)
sp C → (3)

olefinic Bond → 1
Acetylinic Bond → 1

Olefinic Bond → Double Bond b/w carbon and carbon is k/a olefinic Bond
while C≡C is acetylinic Bond

Acetylenic Bond →

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262 ✱ Functional Group

The FG is an atom OR a group of atoms. Join to the Carbon chain. which is responsible for characteristics chemical properties of the organic compounds

eg — OH alcohols
— CHO aldehyde [Carbonyl compounds]
— COOH Carboxylic acid.

✱ Homologous series

• A group OR a g series of organic compounds containing a characteristics FG forms a Homologous series and the members of a series are c/d Homologous.

✱ Characteristics of Homologous series

① All the members of a series Have same FG
② All the member of a series have similar chemical properties because they have FG.
③ All the members of series can be prepared By same General method of Preparation
④ two successive members have a difference of ($-CH_2-$) in molecular formula Have a difference of 14 in molecular mass.
⑤ Physical properties (BP, MP, Refractive index ------) shows a Regular trend. Because physical properties are dependent on molecular mass of the Compound.
⑥ A series can be represented By a general formula.

307 ✱ It may be remember that 1st member alkene is (CH_2) i/a methen/carbene. But has a very short life. the 1st stable member of alkene series is (C_2H_4) ethylene/ethene.

alkane	alkene	alkyne
CH_4	C_2H_4	C_2H_2
C_2H_6	C_3H_6	C_3H_4
C_3H_8	C_4H_8	C_4H_6
C_4H_{10}	C_5H_{10}	C_5H_8
C_5H_{12}		

C_nH_{2n+2} $n=1,2,3,4$

OR $C_{n-1}H_{2n+2}$ $n=2,3$

$C_{n+2}H_{2n+4}$ $n=0,1,2$

C_nH_{2n} $n=2,3,4$---

C_nH_{2n-2} $n=2,3,4$---

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C=C → Type multiple Bond organic FG

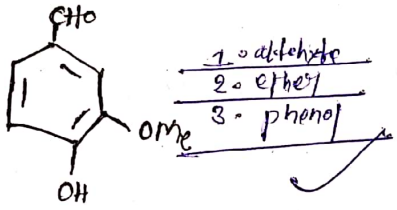
How many minimum carbon atom present in 1st member of following series,

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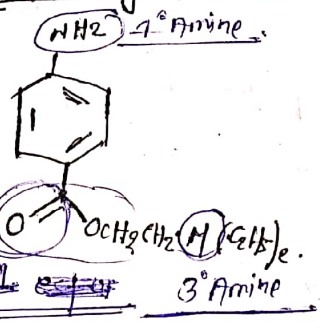
S.N	Series	F.G	1st member	min Carbon
267	alkane	×	CH_4	1
	alkene	C=C	$CH_2=CH_2$	2
	alkyne	C≡C	$HC\equiv CH$	2
307	Arenes (benzene) Do Not Have FG			
	alkadiene	C=C	$H_2C=C=CH_2$ (allene)	3
C_nH_{2n-4}	Alkenyne	C=C, C≡C	$CH_2=CH-C\equiv CH$	4
	alkanol	—OH	CH_3-OH	1
	ether (methyl ethyl)	—O—	CH_3-O-CH_3	2
	aldehyde	—CHO	$H-CHO$	1
	Ketone	$-\overset{O}{\overset{\|}{C}}-$	$CH_3-\overset{O}{\overset{\|}{C}}-CH_3$ (Acetone)	3
	acid	$-\overset{O}{\overset{\|}{C}}-OH$	$H-COOH$	1
	Ester (methyl esthol)	$-\overset{O}{\overset{\|}{C}}-O-$	$H-\overset{O}{\overset{\|}{C}}-O-CH_3$	2
	1° Amine	$-NH_2$	CH_3-NH_2	1
	2° Amine	$-NH-$	$CH_3-NH-CH_3$	2
	3° Amine	$-\overset{\|}{N}-$	$CH_3-\overset{CH_3}{\overset{\|}{N}}-CH_3$	3

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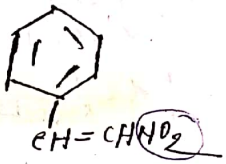
(1) Identify the FG. in following Compound -



1° aldehyde
2° ether
3° phenol



1° Amine
ether
3° Amine



C=C → IUPAC
NO2

(2) what will be mf of 3rd member alkenyne series -

$CH_2=CH-C\equiv CH$ — C_4H_4

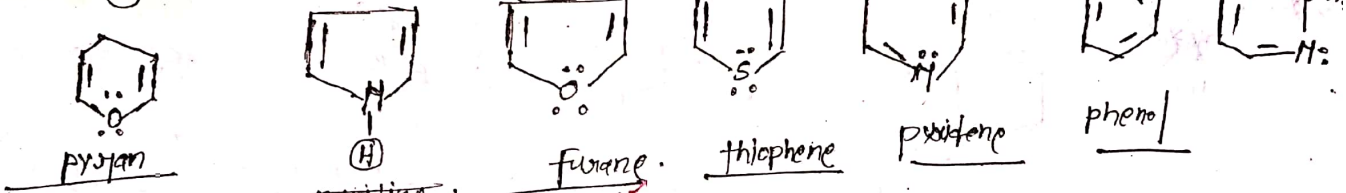
C_5H_6

C_6H_8

(3) what is the correct statement about ethyl methyl ether. $CH_3-O-CH_2-CH_3$

(I) It is the 1st member of ethyl ethers
(II) It is the 2nd member of methyl ethers
(III) It is an unsymmetrical ether
(IV) all of these

(4) How many Heteroatom are present in followings



$R-O-R$ — symmetrical ether

$R-O-R'$ — unsymmetrical ether.

$R-\overset{O}{\overset{\|}{C}}-R$ — simple ketone

$R-\overset{O}{\overset{\|}{C}}-R'$ — mixed ketone

(5) Alkanes are NP molecules because of covalent nature of C–C and C–H Bonds and due to very little difference of EN in C and H atom.

$-\overset{|}{C}-$ 2.25 $\quad =C- $ 2.75 $\quad \equiv C-$ 3.25

* Alkanes possess weak vanderwall forces
* Alkanes are Not soluble in water but soluble in NP solvents.
* Alkanes are colourless, odourless.
* petrol is a mix of Hydrocarbon and also used in fuel in automobile.
* Petrol and lower fraction of petroleum are used for Dry cleaning of cloth to remove grease stain.

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BP ∝ (Polarity)
∝ Mwt
∝ 1/Branches

eg → BP: n-pentane > Isopentane > Neopentane

(b) alkene
- alkenes are (polar), colourless but ethen is colourless with faint sweet smell.
- all other alkenes are colourless, odourless, (insoluble in water).
But soluble in NP solvents like Benzene, Petroleum ether

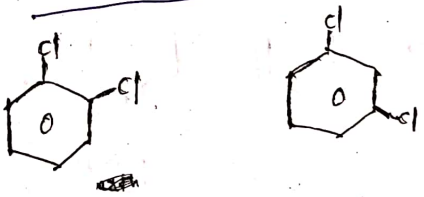
(c) alkynes
- all alkynes are colourless.
- ethyne has characteristics odour. [garlic smell] लहसुन
- Alkynes are (weak polar) in nature, lighter than water, immisible in water
But soluble in organic solvents like ethers, CCl_4, Benzene,

(d) alkyl Halid
- alkyl Halid are colourless when pure But Bromide and Iodide develop colour when exposed to air.

Alkyl Halids are polar. So their BP are Higher as compare to Hydrocarbon of Comparable molecular mass [R-I > R-Br > R-Cl > R-F]

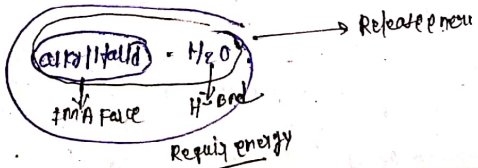
Heat 20-22 times

169



BP → o > p > m
mp → p > o > m

BP of isomeric dihalogenzen are Nearly same. But para isomer Has High mp as compare to ortho and meta isomer. it is due to the symmetry of para isomer that fits in crystal lattice better than as compare to ortho and meta isomers.



Require energy > Release energy → Not soluble
Release energy > Require energy → Soluble

Haloalkanes are very slightly soluble in water because energy require to overcome attraction B/w Haloalkane and break the H-Bond of water, is more as compare to energy Release by making New Bond.

Chloroform used as solvent and also used for production of (freeon gas) R-22
Refrigerant
~~Refrigerant~~
chloroform also used as anesthetic purpose. → carbonyl chloride
chloroform form poisonous phosgene gas when expose in air and light.

$CHCl_3 + O_2 \xrightarrow{light} O=C(Cl)(Cl)$ (Phosgene gas) $+ HCl \rightarrow AgCl\downarrow$ (curdy ppt)

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Chloroform is stored in dark colour bottle to prevent from sunlight and filled upto brim (पूरा भरा) or partially filled with ethanol (which will form Non-poisonous diethyl carbonate with phosgene gas).

$$CCl_2 + 2C_2H_5OH \xrightarrow{\text{ethanol}} O=C(OC_2H_5)(OC_2H_5)$$

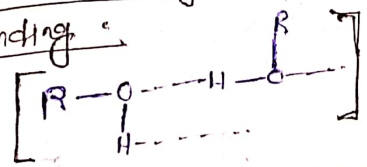
Diethyl carbonate (Non-poisonous solid).

Iodoform

- Iodoform is used as antiseptic but antiseptic property are due to the liberation of free iodine not due to iodoform itself.

Alcohol/Phenol/Ether

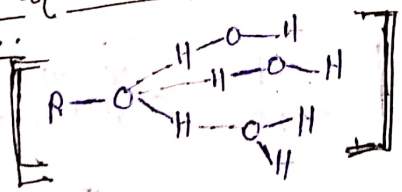
- Alcohols and phenols are polar and have higher BP in comparison to HC, ether Haloalkanes, Haloarenes of comparable molecular mass because they have intermolecular Hydrogen Bonding.
- In alcohol and ether alcohol has higher BP because they will form intermolecular H-Bonding.



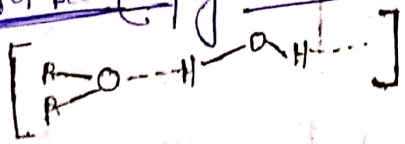
eg BP order.

$$CH_3-CH_2-OH > CH_3-O-CH_3 > CH_3-CH_2-CH_3$$

- Alcohols and phenols are soluble in water. Because they form H-Bonding with water molecules.



- Ether also soluble in water because they will form H-Bonding with water molecules.



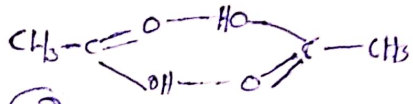
Aldehyde, Ketone, Acid

- methanal is gas while ethanal is volatile liquid at room temp.
- lower aldehydes have sharp pungent odour and smell (odour) decreases with ↑ size
- Naturally occurring aldehyde ketone are used in Blending of perfumes and flavouring agents.
- Aldehyde ketone has Higher BP than HC and ether of comparable molecular mass due to dipole-dipole interaction (weak molecular association)

* BP of CHO & CO are less as compare to alcohols of comparable molecular mass because alcohol has intermolecular H-bonding.

$CH_3-\underset{\underset{O}{\|}}{C}-OH$ (mol. mass = 60)

$CH_3-\underset{\underset{O}{\|}}{C}-OH$ (60) > $CH_3-CH_2-CH_2-OH$ (60) > $CH_3-\underset{\underset{O}{\|}}{C}-CH_3$ (68)



BP

$CH_3-\underset{\underset{O}{\|}}{C}-OH$ (60) > $CH_3-CH_2-CH_2-OH$ (60) > $CH_3-\underset{\underset{O}{\|}}{C}-CH_3$ (68) > CH_3-CH_2-CHO > $CH_3-O-C_2H_5$ > n-Butane [C_4H_{10}]

acid (Trimer) — alcohol — ketone — aldehyde — ether

Trimer H-Bond

dipole-dipole Interaction

	2° prefix	2° suffix
Carboxylic acid	$-COOH$	Carboxy	oic acid
sulphonic acid	$-SO_3H$	Sulpho	sulphonic acid
anhydride	$-CO-O-CO-$	⊗	oic anhydride
Ester	$-COOR$	alkoxy carbonyl	oate
acid Halide	$-COCl$	chloro carbonyl	oyl Halide (chloride)
amide	$-CONH_2$	Carbamoyl	amide
Cyanide / Isocyanide	$-CN$ / $-NC$	Cyano / Isocyano	Nitrile / Isonitrile
aldehyde / ketone	$-CHO$ / $-\overset{\overset{O}{\|}}{C}-$	Formyl / keto / oxo	al / one
alcohol / thioalcohol	$-OH$ / $-SH$	Hydroxy / mercapto	ol / thiol
amine	$-NH_2$	amino	amine

COOH — Carboxylic

COOR — carboxylate

COCl — carbonyl chloride

$CONH_2$ — Carboxy amide

CN — Carbonitrile

CHO — Carbaldehyde

* Bracket वाला main FG है C की PGC में लिखा है

1	$-C(=O)OH$ / $-COOH$	Carboxylic acid	× carboxy.	oic acid. / Carboxylic acid
2	$-SO_3H$	sulphonic acid	Sulpho	Sulphonic acid.
3	$-C(=O)-O-C(=O)-$	anhydride	×	oic anhydride.
4	$-C(=O)OR$ / $-COOR$	ester	× alkoxy carbonyl	alkyl ---oate. / alkyl ---Carboxylate.
5	$-C(=O)X$ / $-COX$	acid Halid.	× Haloformyl.	oyl Halid. / Carbonyl. Halid.
6	$-C(=O)NH_2$ / $-CONH_2$	amide	× carbamoyl.	amide / Carboxamide.
7	$-C\equiv N$ / $-CN$	Cynide	× Cyano.	Nitrile / Carbonitrile
8	$-N\equiv C$	Isocynide	Isocyno.	Isonitrile.
9	$-C(=O)H$ / $-CHO$	aldehyde	OXO formyl.	al / Carbaldehyde
~~10~~	$-C(=O)H$ / $-CHO$			
10	$-C(=O)-$	Ketone	Keto/oxo-	one
11	$-OH$	alcohol	Hydroxy	ol
12	$-SH$	thio alcohol	mercapto.	thiol
13	$-NH_2$	amine	amino.	amine

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IUPAC

① Rule A — selection of PCC — PFG > MB > No of C > Substituent

② Rule B — Numbering in Carbon chain — PFG > MB > Substituent

③ Rule C — other Rule

2° prefix + 1° prefix + word root + 1° suffix + 2° suffix

- 2° prefix: Side branch, Acc^n to alphabet
- 1° prefix: cyclo
- word root: No of C — meth / eth / prop
- 1° suffix: Bond — − ane, = ene, ≡ yne; =, = diene; =, ≡ en, yne
- 2° suffix: ↓ ROH

Rule A

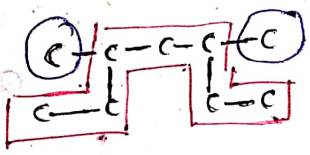
① selection of PCC

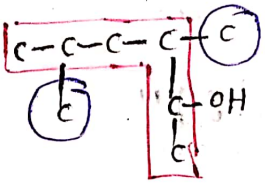
① Select the continuous longest carbon chain as PCC that contains maxm No of main FG, MB, Substituents

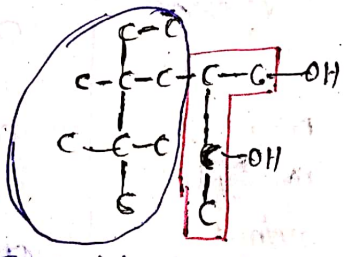
priority order → FG > MB > substituent

* Highest priorities FG in priority table treated as main FG while Remaing all other low priority FG treated as substituents.

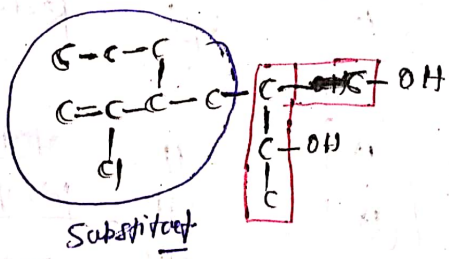
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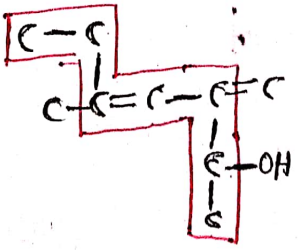




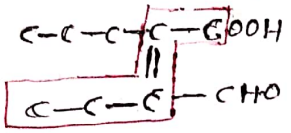
Substituted substituent



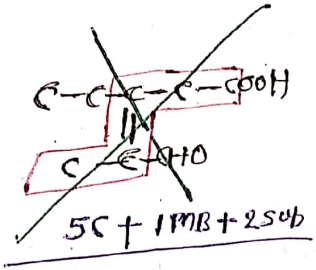
Substituent



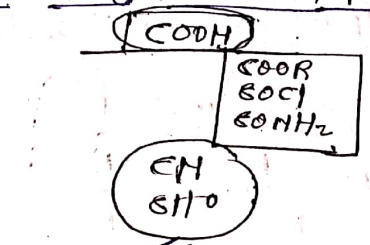
② If main FG contains Carbon then Carbon of main FG will be included in PCC.

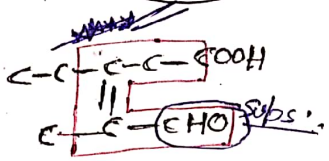


6C + 2MB + 2 sub



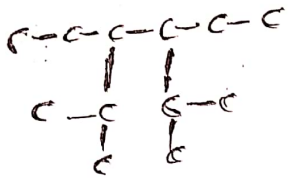
5C + 1MB + 2 sub

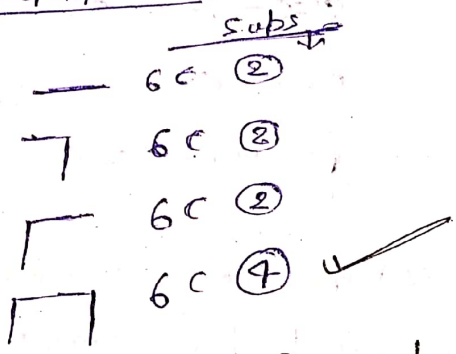




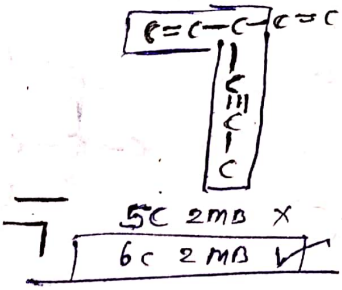
5C + 1MB + 3 Sub

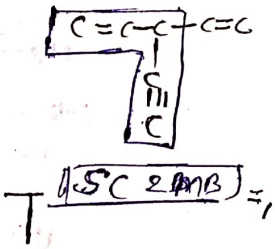
③ If more than 1 same length of PCC are available then select the chain as PCC that contains maxm No. of substituents.

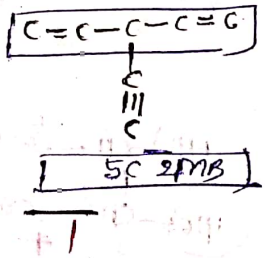




④ If both DB and TB are present and symmetrical case is present then DB gets more priorities over TB: (= > ≡) जब की जाएगी





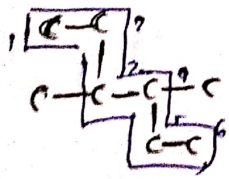


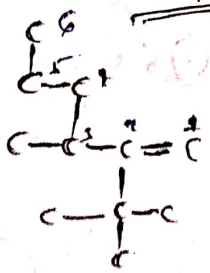
यदि दोनों में (=) more priority always = > ≡ नहीं

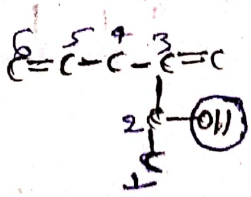
Rule B [Numbering]

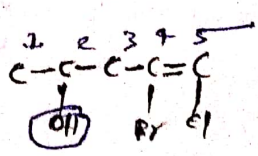
① Start the Numbering in PCC in such manner that FG, MB, substituent gets lowest No.

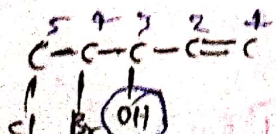
priority order → FG > MB > Substituent

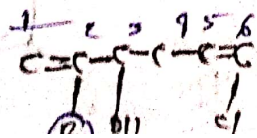








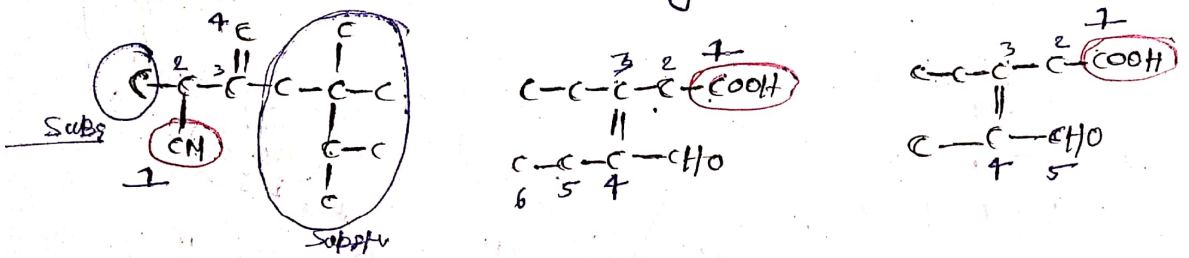




यदि selection then Numbering

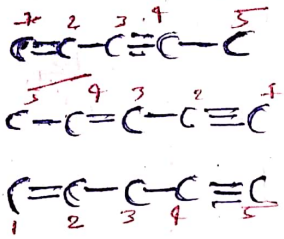
Scanned with OKEN Scanner

(2) If main FG contains Carbon then Numbering should start from Carbon of main FG :



(3) For symmetrical cases only

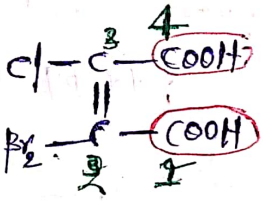
(Ex 1) when two MB are present at same position and there is a chance B/w Double and Triple Bond the DB gets more priority



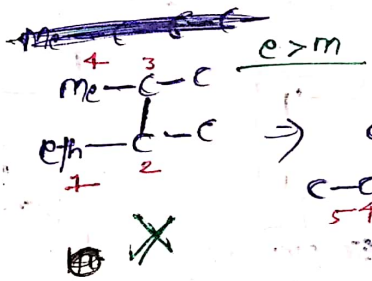
(Case 2) when two substituent are present at same position then Numbering should done according to alphabetical order.

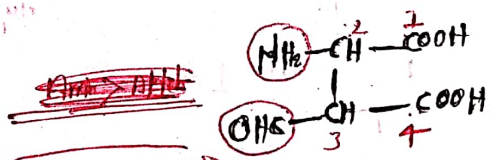
Br > Cl

B > C





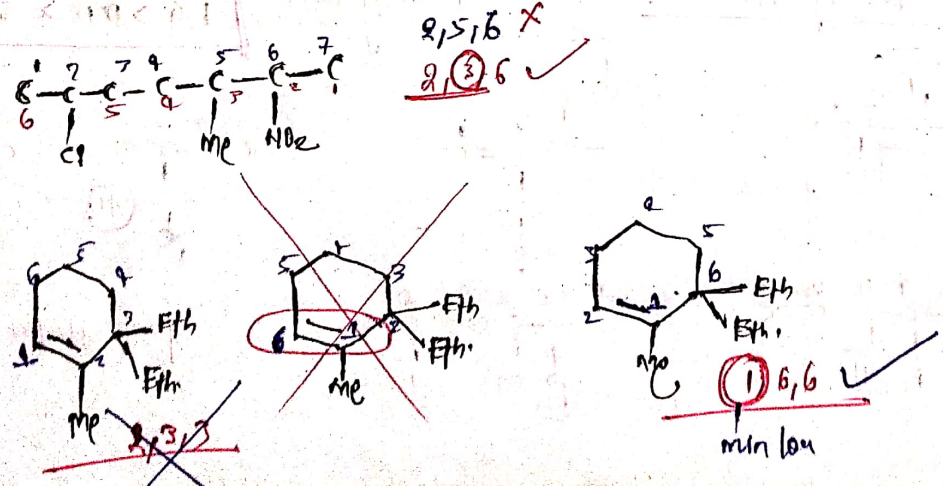




Amino > Formyl

N > F

(4) If more than 2 substituents are present then Numbering should be done acc to minimum locant Rule.



Scanned with OKEN Scanner

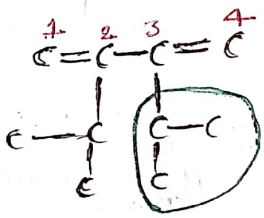
B/w H & C → Comma
B/w Name → dash.

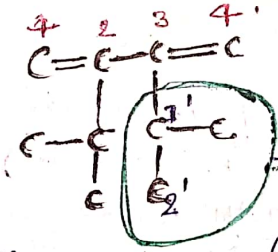
Rule C

① use comma b/w two digits (1, 2)
use Hyphen (dash) b/w a no and word (1-ethyl)
use Di, Tri, Tetra when same type of FG/ANB/ substituents are present.
Iso, neo, Cyclo ——— are counted in alphabetical order
while [sec, tert, di, tri, tetra] are not counted in alphabetical order.

always use prefix for substituents with their locants/position.
always use suffixes for main FG

use of Bis, Tris, Tetrakis
when same type of substituted substituents are present then use (Bis, Tris ———

eg

2,3-Di isopropyl Buta-1,3-diene

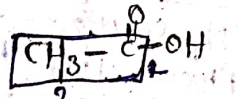

2,3-Bis-(1'-methyl ethyl)
Buta-1,3-diene

7-24'
Lec-6

IUPAC Formate

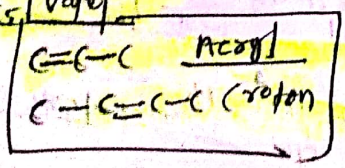
2° prefix + 1° prefix + word Root + 1° suffix + 2° suffix

2° prefix → substituents with locants
1° prefix → Cyclo
word Root → 1C-meth, 2C-eth, 3C-prop, 4C-But, 5C-Pent
1° suffix → ane, ene, yne, en-yne, diene, di yne (main FG from priority table)
2° suffix → eg oic acid; a, e, i, o, u, Y — ये शुरुवात में हो तो e हटा दो; 1° suffix को बताता

① 
Acetic acid

Eth + an + oic acid
Ethan-1-oic acid
1-Ethanoic acid
Ethanoic acid
(Acetic acid)

C1	Form
C2	Acet
C3	Propion
C4	Butyr
C5	Valer


Acryl
Croton

(Common names IUPAC में दिये इतनी अलग हैं की जानो IUPAC के suffix ओर शुरुआत के common name के लिये o हटा दो
और जो o से नहीं शुरु होते उनमें आगे (o) लगा दो)

o से होते हटा दो
o नहीं से लगा दो

ये सभी Common Name लिखेंगे Bracket में लिखेंगे

If main FG contains Carbon then for common name system use

Formi = 1C
Acet = 2C
Propian = 3C
Butyry = 4C
Valeq = 5C

Acryl (3C+ =)
Crotan (4C+ =) DB middle
Vinyl C=C

C=C-C Allyl
C-C=C-C Vinyl Croton

Benzyl
Benzoyl
Benzo

(1) CH_3-CH_2-COOH — Propionic acid (Propionic acid)

(2) $CH_3-CH_2-CH_2-COOH$ — Butan-oic acid, n-Butyric acid

normal
n- वाले में 2nd C पर CH_3 और straight chain में
2nd C पर CH_3 में iso

(3) $CH_3-CH(CH_3)-COOH$ — 2-methyl Propan-oic acid, iso-Butyric acid

(4) $CH_3-CH_2-CH_2-CH_2-COOH$ — Pentan-oic acid, (n-valeric acid)

(5) $CH_3-CH(Cl)-COOH$ — 2-chloro Propionic acid

(6) $CH_2=CH-CH_2-COOH$ — But-3-enoic acid, Croton

(7) $CH_3-CH(OH)-COOH$ — 2-Hydroxy Propanoic acid, Lactic acid

(8) $CH_3-CH(CHO)-COOH$ — 3-methyl-4-oxo butanoic acid, 4-keto-3-methyl butanoic acid

(9) $HOOC-COOH$ — Ethan-1,2-dioic acid, 1,2-Ethandioic acid, Oxalic acid

(10) $CH_2(COOH)_2$ — Propan-1,3-dioic acid, malonic acid

(11) $CH_3-CH(CHO)-CH_2-COOH$ — 3-formyl Pentan-oic acid

If CHO is present as substituent then its carbon may or may not be included in PCC

If carbon of CHO is included in PCC then use oxo as prefix while carbon of CHO is Not included in PCC then use formyl as PCC

Other carbon containing FG like COOH, ester, CN, CO-NH2 ... are present as substituent then their carbon will not be included in PCC because for such cases No prefix available in priority table

O	M	S	G	A	P
0	1	2	3	4	5

2 COOH के बीच की carbon no

(12) $Cl-CH(COOH)-CH_2-COOH$ — 2-chloro Butan-1,4-dioic acid

(13) $Br-C(Cl)(COOH)-CH_2-COOH$ — 2-Bromo-3-chloro Butan-1,4-dioic acid

(14) $HO-CH(COOH)-CH(OH)-COOH$ — 2,3-Dihydroxy Butan-1,4-dioic acid, Tartaric acid

(15) $NH_2-CH(OH)-CH_2-COOH$ — 2-Amino-3-formyl But-1,4-dioic acid

(16) $CH_2=CH-COOH$ — Prop-2-en-1-oic acid, Acrylic acid

(17) $CH_3-CH=CH-COOH$ — But-2-en-1-oic acid, Crotonic acid

(18) $CH_3-CH(CH_3)-CH_2-COOH$ — 3-methyl Butan-1-oic acid

(19) $NC-CH_2-CH_2-COOH$ — 3-cyno Butanoic acid

(20) $NC-CH(CH_3)-CH_2-COOH$ — 2-Cyno Butanoic acid

(9) $CH_3-\overset{4}{C}(=O)-\overset{3}{CH}(CH_3)-\overset{2}{C}(=O)-\overset{1}{OH}$

3-keto-2-methyl Butanoic acid

2-methyl-3-Oxobutanoic acid

(22) $CH_3O-\overset{3}{C}(=O)-\overset{2}{CH_2}-\overset{1}{C}(=O)-OH$ — 2-Methoxy Carbonyl ethan-oic acid

Substituent FG OR Carbmethoxy

(23) $CH_3-\overset{3}{C}(=O)-O-\overset{2}{CH_2}-\overset{1}{COOH}$ 2-ethanoyl oxy-ethanoic acid.

$CH_3-C(=O)-$ Acyl / Ethanoyl

$CH_3-C(=O)-O-$ Acetoxy / ethanoyl oxy

$R-C(=O)-O-$ Alkanoyl oxy

$R-O-C(=O)-$ Alkoxy carbonyl

4-7-24 Lec-7

(24) $CH_3-\overset{2}{C}(=O)-\overset{1}{O}-C_2H_5$ Ethyl. Ethanoate.

(25) $CH_3-\overset{3}{CH}(CH_3)-\overset{2}{C}(=O)-\overset{1}{O}-CH_3$ methyl-2-methyl Propan-oate

Simple Radical: methyl, ethyl

Complex Radical: 1-methyl ethyl, 2-methyl propyl, 1-Amino methyl

Gd branch ki branch आएगी उसे Radical बोलते हैं

If simple Radical present on 2 time, 3 time, 4 time then Di, Tri, Tetra

If complex Radical on 2, 3, 4 time then Bis, Tris, Tetrakis used

① Selection of PCC

PFG > MB > No of C > Substituent

(Ponytail) =, ≡

② Numbering in select chain

PFG > MB > Substituent

③ Naming

2° prefix + 1° prefix + word root + 1° suffix + 2° suffix

Substituent (Side branch) acc^n to alphabet — Cyclo — No of C (meth, eth, prop) — Max (≡ ane, ≡ exne, = = diene) — PFG

3C+1π → Acryl

4C+1π → Crotyl

2 multiple

C=C Venyl

C=C-C Allyl / Acryl

C-C=C-C Crotyl

Benzyl

Benzal.

Benzo

C≡C-C- Propargyl

Alcohol, ether: R-CH2-OH, R-O-R. Alkane + [O]

Aldehyde, Ketone: R-C(=O)-H, R-C(=O)-R. Alkene + [O]

Ester, Carboxylic acid: R-C(=O)-OR, R-C(=O)-OH. Alkene + [O, O]

1°, 2°, 3° Amine: NH2, NH, N. Alkane + NH

CH3-CH(CH3)- iso propyl

CH3-CH(CH3)-CH2-CH3 sec butyl

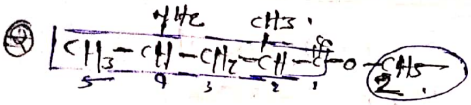
(CH3)3C- tert butyl

Alkoxy carbonyl

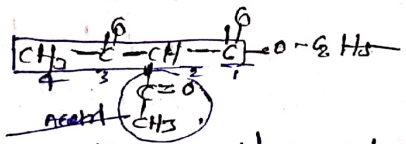
Alkanoyl oxy

R-O-R Alkoxy Alkyl

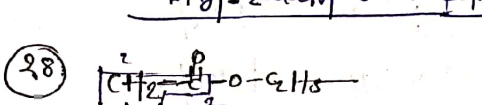
Neo-pentyl

(26) 

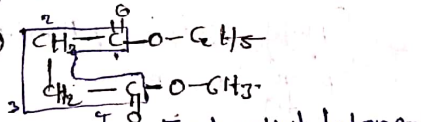
Ethyl-4-amino-2-methyl Pentanoate

(27) 

Ethyl-2-acetyl-3-oxo Butanoate

(28) 

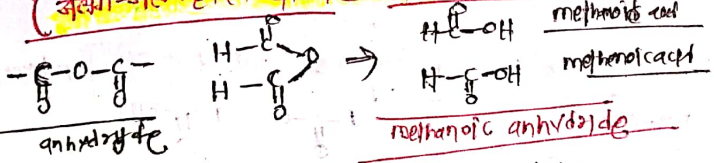
Ethyl-butane-1,4-dioate

Exm (29) 

Ethyl methyl butane-1,4-dioate

Anhydride

(30) एक ही type के acid होंगे तो बोलेंगे अलग-अलग होंगे तो बोलेंगे दोनों acid के नाम

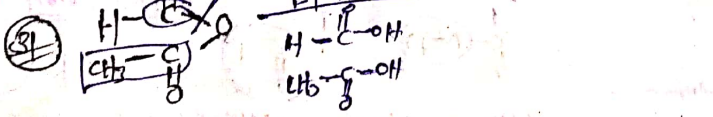


methanoic anhydride

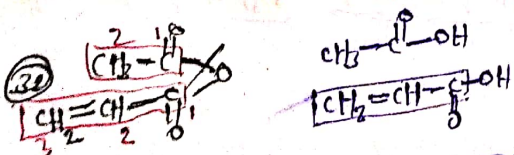
* Anhydride formed By 2 moles of acid whether they are same or not.

* If same acid used to form anhydride, then do not use Di- before its Name.

* If two different type of acid are use to preface anhydride then its Name use in alphabetical order of acid.

(31) 

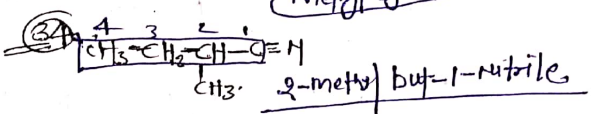
Ethanoic-methanoic anhydride

(32) 

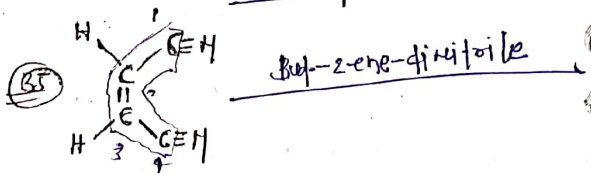
Ethanoic Prop-2-enoic anhydride

(33)

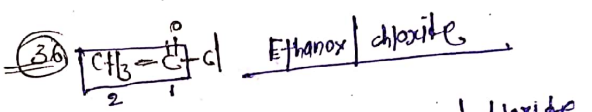
Ethan-1-nitrile, Acetonitrile or methyl cyanide

(34) 

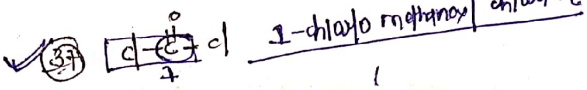
2-methyl but-1-nitrile

(35) 

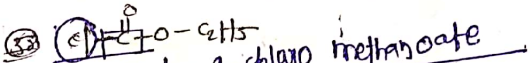
But-2-ene-dinitrile

(36) 

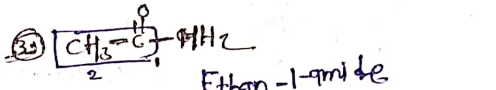
Ethanoyl chloride

(37) 

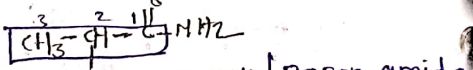
1-chloro methanoyl chloride

(38) 

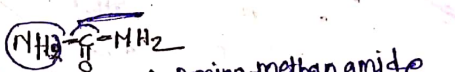
Ethyl-1-chloro methanoate

(39) 

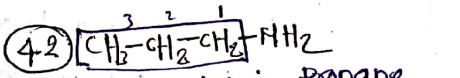
Ethan-1-amide

(40) 

2-methyl Propan-amide

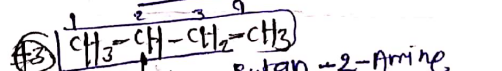
(41) 

1-Amino-methan amide

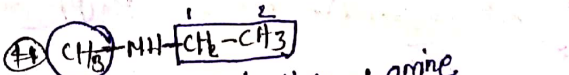
(42) 

× 1-Amino Propane

Propan-1-Amine

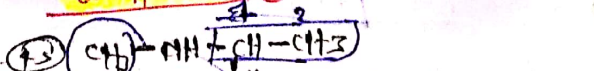
(43) 

Butan-2-Amine

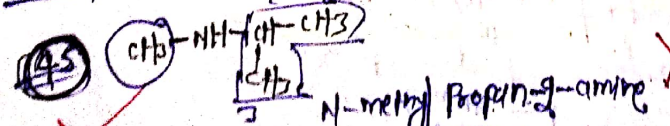
(44) 

N-methyl ethan-1-amine

* If any substituent is attached with (N) then position of substituent will be written with (N) capital N

(45) 

× N-methyl-1-methyl ethan-1-amine

(46) 

N-methyl Propan-2-amine

(46) $CH_3-NH-CH(CH_3)-CH_2-CH_3$ (1 2 3 4)

N-methyl butan-2-amine

(47) $(CH_3)_2N-CH_3$

N,N-Dimethyl methanamine

(48) $CH_3-N(CH_3)-CH(CH_3)-CH_3$ (C_2H_5)

N-ethyl-N-methyl Propan-2-amine

(49) $CH_3-N(CH_3)-C(CH_3)_2-CH_2-CH_3$

~~N,N-Dimethyl-3-methyl Pentan-3-amine~~

N,N,3-Trimethyl Pentan-3-amine

तीनों methyl में एक लाल लिखो

(50) $CH_3-C(=O)-NH-CH_3$

N-methyl ethan amide

(51) $H-C(=O)-NH-CH_2-CH_3$

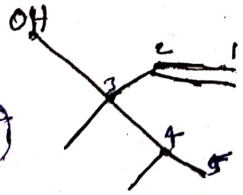
N-Ethyl methan amide

(52) $CH_3-C(=O)-N(CH_3)-CH_2-CH_3$

N-ethyl-N-methyl Ethan amide

(53) $CH_3-CH(CH_3)-CH(OH)-CH_3$ (1 2 3 4)

3-methyl butan-3-ol

(54) 

3,4-Dimethyl Pent-1-en-3-ol

लम्बी chain वाला सिरा No

(55) $CH_3-CH(CH_3)-CHO$ (3 2 1)

2-Methyl propan-1-al

(Iso-butyral aldehyde)

(56) CH_3-CH_2- ethyl

(II) $CH_3-CH(CH_3)-CH_3$ Iso-Propyl [1-methyl ethyl]

(III) $CH_3-CH(CH_3)-CH_2-$ (3 2 1)

2-methyl propyl (Iso-butyl)

(IV) $CH_3-C(CH_3)_2-$ (2 CH3)

1,1-Dimethyl ethyl (Tert-Butyl)

(V) $CH_3-CH(CH_3)-CH_2-CH_3$ (1 2 3)

1-methyl propyl (Sec-Butyl)

MCER (II) (12) के EC chapter के solution के 3-4 page

(VI) $CH_3-C(CH_3)_2-CH_2-CH_3$ (CH3 1 2 3)

1,1-Dimethyl propyl (Tert-Pentyl)

(VII) $CH_2=C(CH_3)-CH_3$ (2 1 4)

1-Methyl ethenyl

(VIII) $CH_2=CH-CH_2-$ (3 2 1)

Prop-2-enyl (Allyl)

MCER (II) (12) EC chapter के exercise के 4 या 5 question देखो

5-7-24 Lec-8

(IX) $Ph-CH_2-$

1-phenyl methyl (Benzyl)

(X) $CH_3-C(CH_3)_2-CH(CH_3)-CH_3$ (CH3 1 2 3)

1,1,2-Trimethyl propyl

(XI) $-CH_2-CH_2-OH$ (2 1)

2-Hydroxy ethyl

(XII) $CH_2(Cl)-CH(Cl)-CH_2-$ (3 2 1)

2-chloro-propyl

(XIII) $-CH_2-COOH$

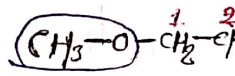
1-carboxy methyl

(*) For IUPAC of Radical Numbering should start from free valency, No one is FG all are treated as substituent.

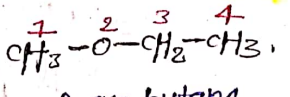
Scanned with OKEN Scanner

(57) Ether

* If only ether is present then we may considered oxygen as carbon. But in such case, use oxa as prefix for oxygen.



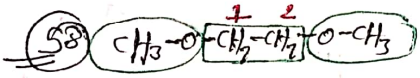
1-methoxy ethane.



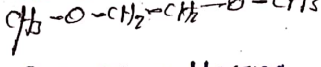
2-oxa butane.

N	→ Aza
O	→ Oxa
S	→ Thia

(58)

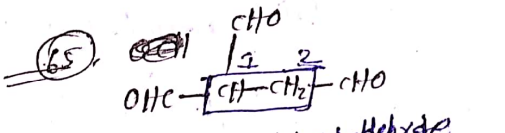


1,2-Dimethoxy ethane



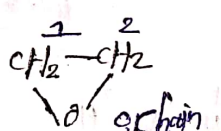
2,5-Dioxa Hexane.

(65)

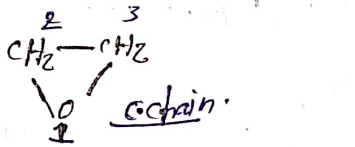


Ethan-1,1,2-tricarbaldehyde

(59)

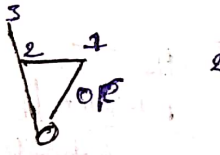


1,2-Epoxyethane.

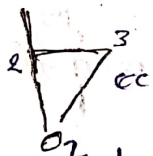


1-oxa cyclo propane.

(60)

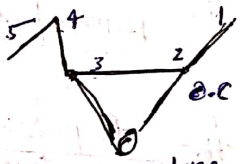


1,2-epoxy propane.

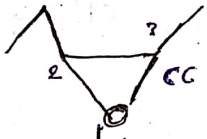


2-methyl-1-oxa cyclo propane.

(61)

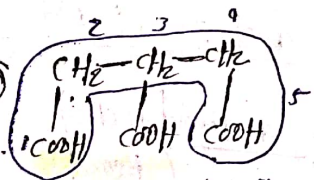


2,3-epoxy pentane.

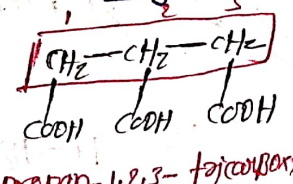


2-Ethyl-3-methyl-1-oxo cyclo propane.

(62)

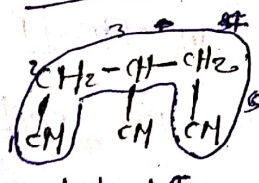


3-Carboxy pentane-1,5-Dioic acid.

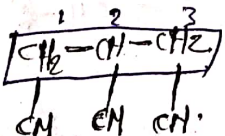


propan-1,2,3-tricarboxylic acid

(63)

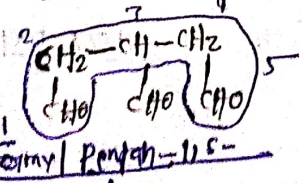


3-cyano pentan-1,5-dinitrile

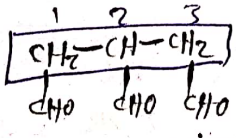


propan-1,2,3-tricarbonitrile.

(64)



3-Formyl Pentan-1,5-dial



propan-1,2,3-tricarbaldehyde

(IUPAC for Cyclic Compound)

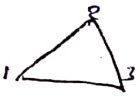
(1) If Both OC and CC are present then select the chain as PCC that contain max no of FG, MB, substituent.

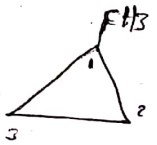
(2) If Both OC and CC are identical then CC gets more priority

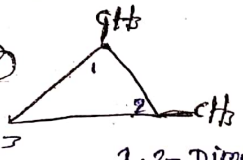
(3) MB should in B/w 2 successive M

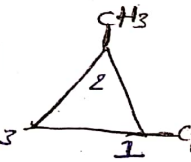
(4) If Benzene Ring is as PCC then use Benzene as word Root. while if use phenyl as substituent

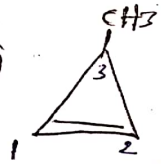
(5) If carbon containg main FG is directly attach with Ring then Carbon of main FG will Not Be included in PCC while select the longest chain and use suffix (2) for FG

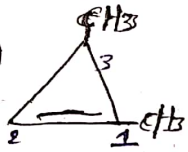
(66)  cyclopropane.

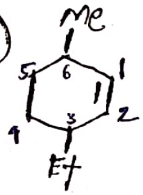
(67)  1-methyl cyclopropane.

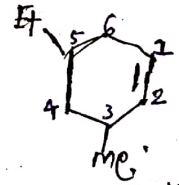
(68)  1,2-Dimethyl cyclopropane.

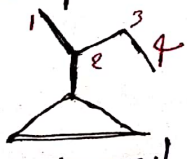
(69)  1-ethyl-2-methyl cyclopropan.

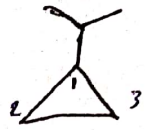
(70)  3-methyl cyclopropene.

(71)  1,3-Dimethyl cyclopropene.

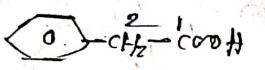
(72)  3-ethyl-6-methyl cyclo hexene

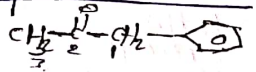
(73)  5-ethyl-3-methyl cyclohexane.

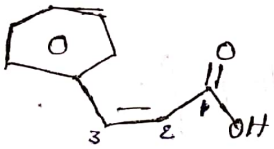
(74)  2-cyclopropyl butane.

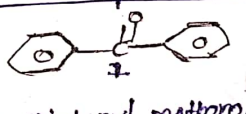
(75)  1-Isopropyl cyclopropane.

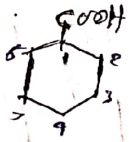
(76)  1-cyclopentyl ethene.

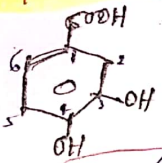
(77)  2-phenyl ethanoic acid.

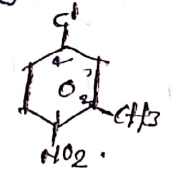
(78)  1-phenyl prop-2-one.

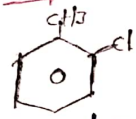
(79)  3-phenyl prop-2-ene-1-oic acid

(80)  1,1-Dipheny methanol. (Benzophenol)

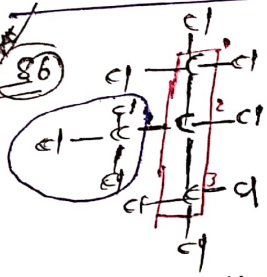
(81)  Cyclohexan carboxylic acid

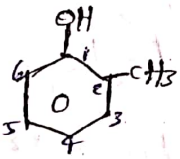
(82)  3,4-dihydroxy Benzen carboxylic acid (Benzoic acid)

(83)  4-chloro-2-methyl-1-nitro benzene.

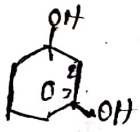
(84)  1-chloro-2-methyl Benzen or 2-chloro toulene.

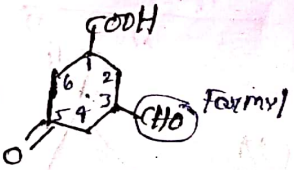
(85)  1-chloro-1-phenyl methane (Benzyl chloride)

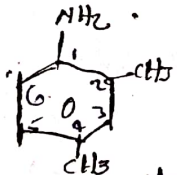
(86)  1,1,1,2,3,3,3-Heptachloro-2-trichloromethyl propane

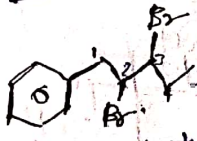
(87)  2-methyl Benzen-1-ol 2-methyl phenol (O-cresol)

6-7-24 Lec-9

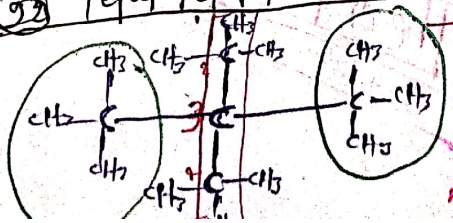
(88)  Benzen-1,3-Diol

(89)  3-Formyl-5-oxo cyclohexane carboxylic acid

(90)  2,4-Dimethyl aniline

(91)  2,3-Dibromo-1-phenyl pentane

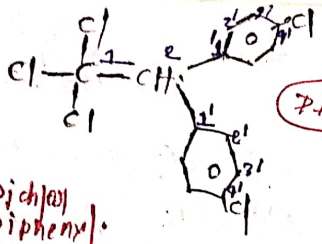
(92) Tetra tert-butyl methan



3,3-diter-Butyl-2,2,4,4-tetra methyl pentane

Scanned with OKEN Scanner

(93)

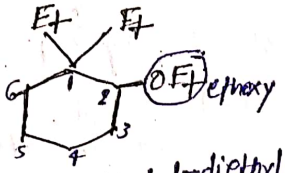


DDT

Dichloro Diphenyl chloroethane

1,1,1-Trichloro-2,2-bis-(4'-chlorophenyl)ethane.

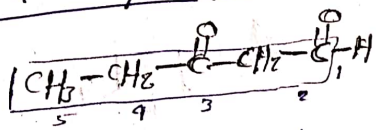
(94)



ethyl < ethoxy

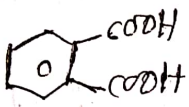
2-Ethoxy-1,1-diethyl cyclohexane

(95)



3-oxo pentan-1-al.

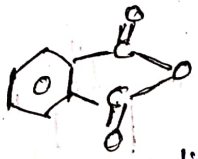
(96)



Benzene-1,2-dicarboxylic acid

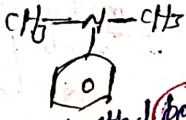
Phthylic acid

(97)



Benzen-1,2-dicarboxylic anhydride

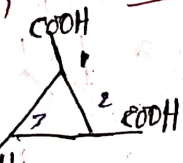
(98)



N-M-Dimethyl benzenamine

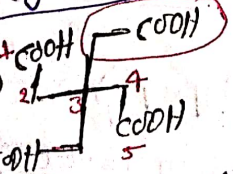
Aniline

(99)



Cyclopropan-1,2,3-tricarboxylic acid

(100)



Carboxy methyl

3,3-dicarboxy methyl Pentan-1,5-dioic acid.

The end

6-7-24