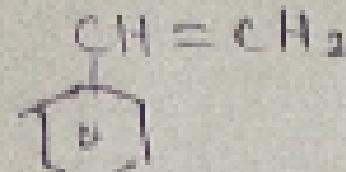
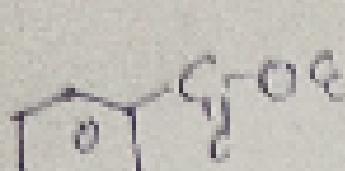
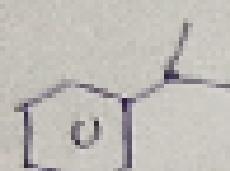
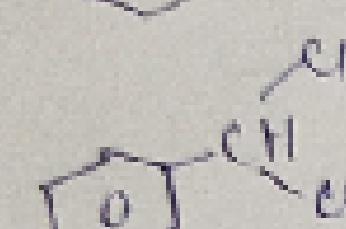
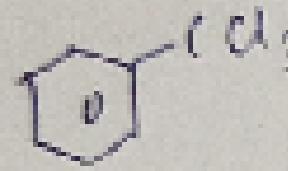
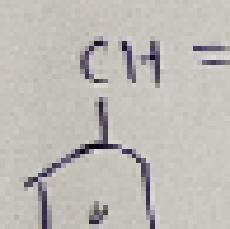
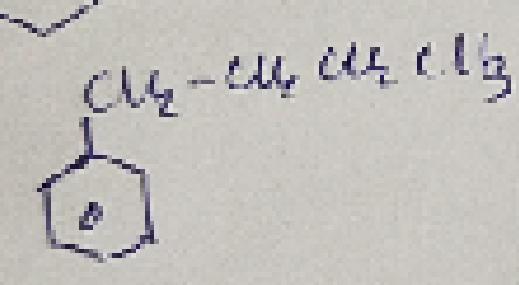


## IUPAC name of benzene derivative:

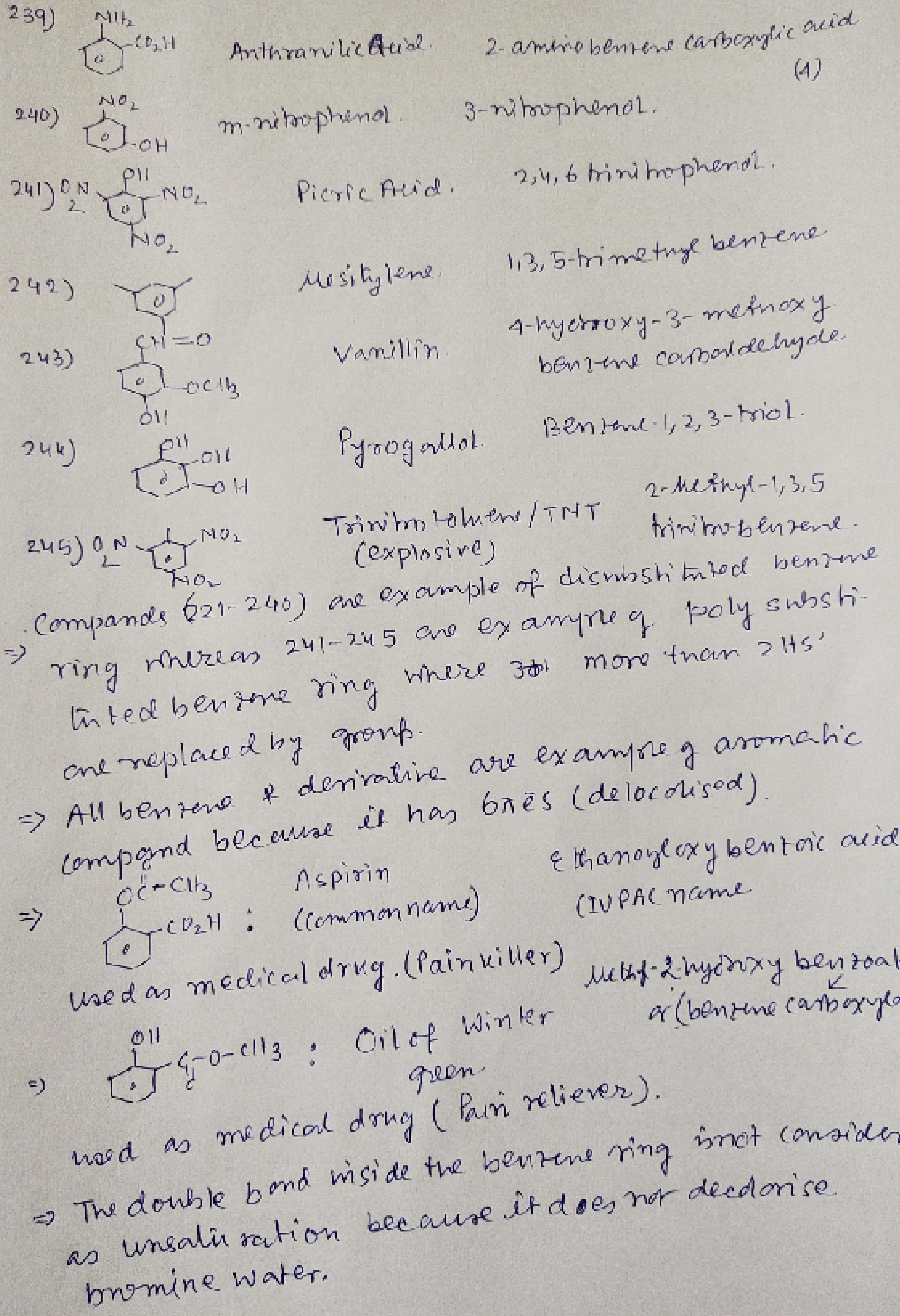
(1)

	Structure of epd	Common name	IUPAC name
201)		Benzene	Benzene.
202)		Toluene	methylbenzene / Toluene.
203)			chlorobenzene.
204)		Anisole	methoxy benzene
205)		Phenetole.	Ethoxy benzene.
206)		Phenol.	Phenol.
207)		Benzyl chloride.	chlorophenyl methane.
208)		Nitrobenzene	Nitrobenzene.
209)		Nitrosobenzene	Aniline / Benzylamine.
210)		Aniline	Benzene carboxy amide.
211)		Benziimid.	Benzene carboxyl chloride
212)		Benzoyl chloride.	Benzene nitrile.
213)		Cyanobenzene	
214)		Benzoic acid	Benzoic acid. or Benzene carboxylic acid.
215)		N,N-dimethyl aniline.	Benzene N,N-Dimethyl amine.
216)		Benzaldehyde	Benzaldehyde. or Benzene carboxaldehyde.
217)		Acetophenone	Phenyl & thionone.

	Structure of compound.	Common name	IUPAC name.
(218)		Styrene.	Phenylethene. (2)
(219)		Phenylacetylene.	Phenyl ethyne.
(220)		Ethyl benzoate.	Ethylbenzoate or Ethyl benzene carboxylate
(221)		Cumene.	Isopropyl benzene.
(222)		Benzylchloride.	Dichlorophenyl methane.
(223)		Benzotrifluoride.	Trichlorophenyl methane
(224)		Stilbene.	1,2-diphenyl ethene.
(225)		m-butyyl benzene	Butyl benzene

- ⇒ All the above exq (201-225) are example of monosubstituted benzene ring.
- ⇒ When  $-CH=O/H-OH$  is attached directly with ring (any) the suffix carbalddehyde & carboxylic acid is used up for the group.
- ⇒ Similarly when  $-CH/-C=O/-Cl$  is attached directly with ring (any), the suffix carbonitrile & carbonyl chloride is used up for the group.
- ⇒ Benzene ring can't be 1,3,5 cyclonexatriene. because one particular character (aromatic character).
- ⇒ n-term for n-butyyl/n-pentyl/... should not be used in IUPAC nomenclature.

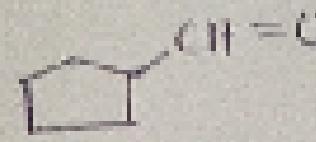
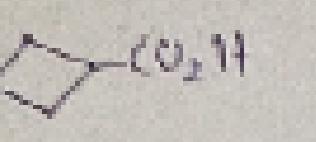
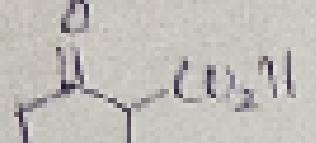
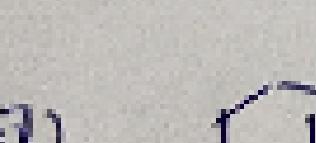
Disubstituted / Poly substituted benzene ring. (2)			
	Structure of the compound	Common name	IUPAC name
220)		Catechol.	Benzene-1,2-diol
221)		Resorcinol	Benzene-1,3-diol
222)		Quinol.	Benzene-1,4-diol
223)		Salicylaldehyde	2-hydroxy benzene carbaldhyde
224)		Salicylic acid.	2-hydroxy benzene carboxylic acid.
225)		Phthalic Acid	Benzene-1,2-dicarboxylic acid
226)		Isophthalic acid.	Benzene-1,3-dicarboxylic acid
227)		Terephthalic acid.	Benzene-1,4-dicarboxylic acid.
228)		$\text{O-Cresol}$ .	2-Methyl phenol.
229)		$\text{p-Cresol}$ .	4-Methyl phenol.
230)		$\text{o-Tolidine}$	2-Methylaniline.
231)		1-Chloro-2-methylbenzene or	
232)		2-Chlorotoluene.	
233)		$\text{2-Methyl benzoic acid}$	
234)		$\text{2-Methyl benzoic acid}$	
235)		$\text{2-Methyl benzoic acid}$	
236)		2-Chlorotoluene	
237)		2-Chlorotoluene	
238)		$\text{2-Methyl benzoic acid}$	



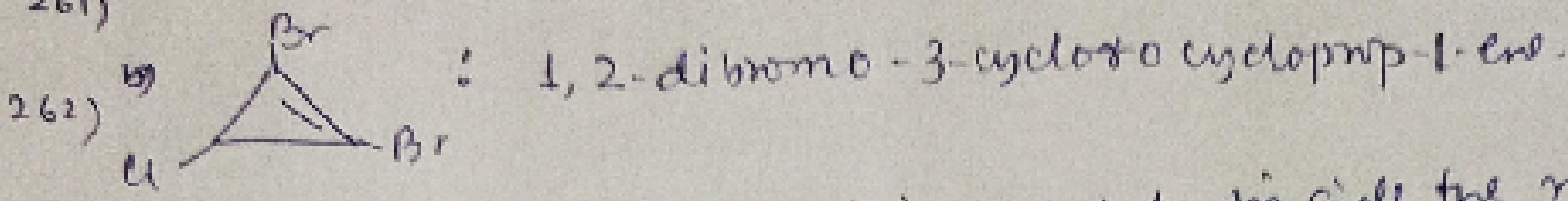
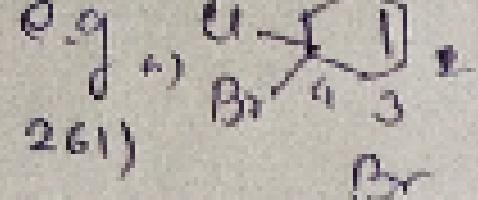
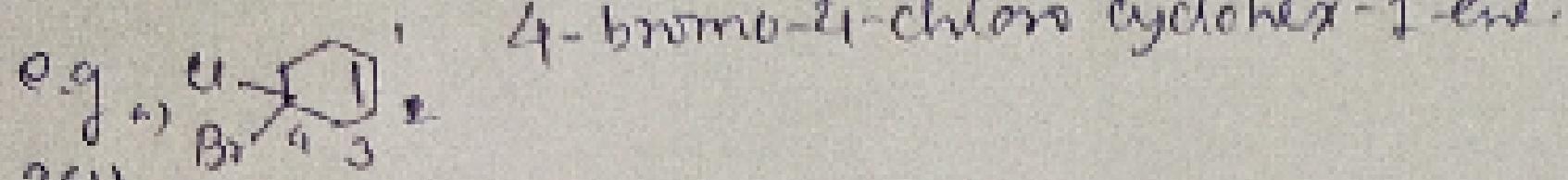
IVPAE name of some other cyclic compound (monocyclic) (5)

Structure of the compound IVPAE.

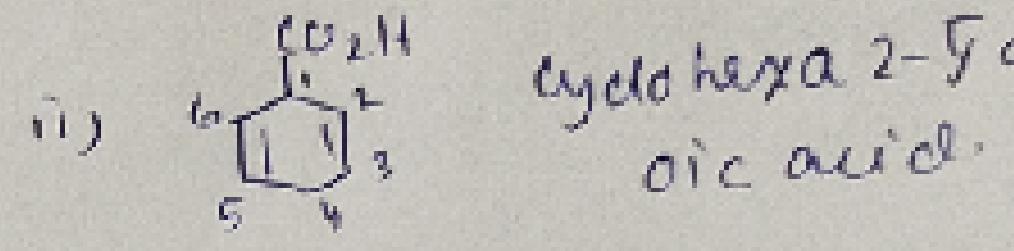
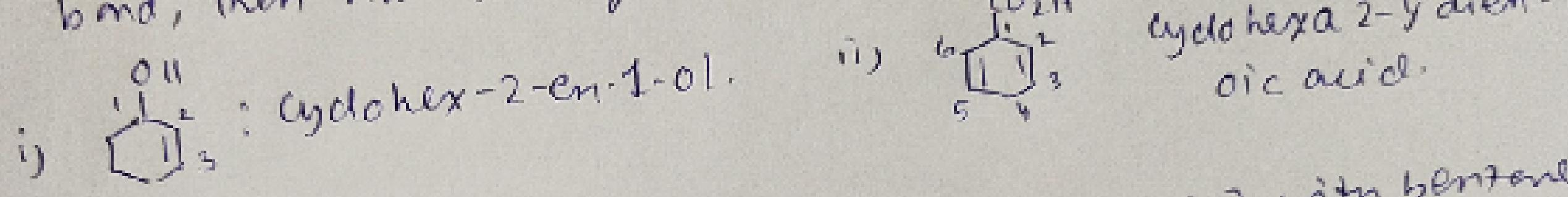
Note:

- (246)  cyclopentane carbaldelyde (1) If double bond is present in outside the ring & if no double bond is present inside the ring, then main chain will be formed = bond outside the ring [e.g. 250]
- (247)  cycloheptane carboxylic acid.
- (248)  2-Oxo cyclohexane carboxylic acid.
- (249)  1,2,3-tricyclopropylcyclopropane.
- (250)  cyclohexa-1,3-diene.
- (251)  cyclohexylcyclohexane.
- (252)  2,2,3-trimethylcyclohexanol.
- (253)  Methylenecyclopentane.
- (254)  1-Ethyl-3-methylcyclohexane.
- (255)  1-cyclohexylethene.
- (256)  Propylcyclohexane.
- (257)  1-Ethenylcyclohexene.
- (258)  1-cyclobutyl-4-methylhexane.
- (259)  1-cyclopentyl-5-methyl-2,6-dimethyloctane.
- (260)  Hexylcyclobutene.
- (3) If there is no double bond inside & outside the ring then for cyclic hydrocarbon longest chain can be formed with ring or e.g. 256, 258, 259 (openchain carbon atoms).
- (iv) Some things happens when double bond present in the ring & outside ring [e.g. 257]

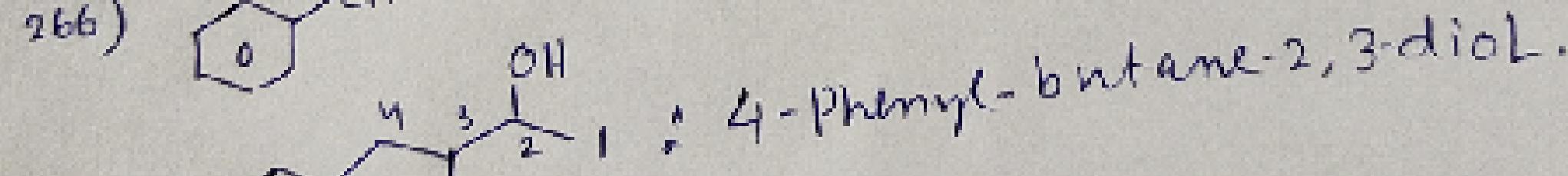
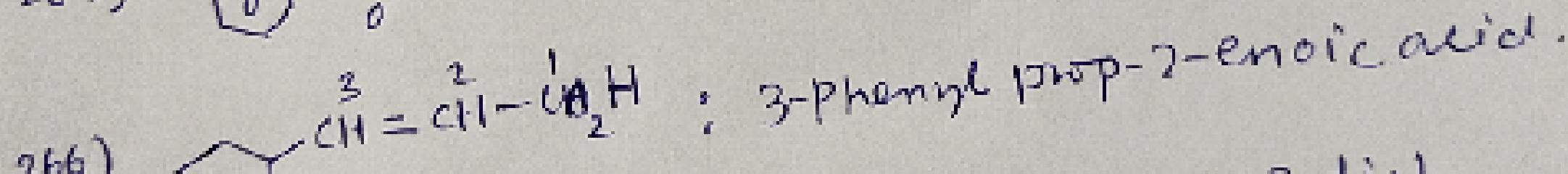
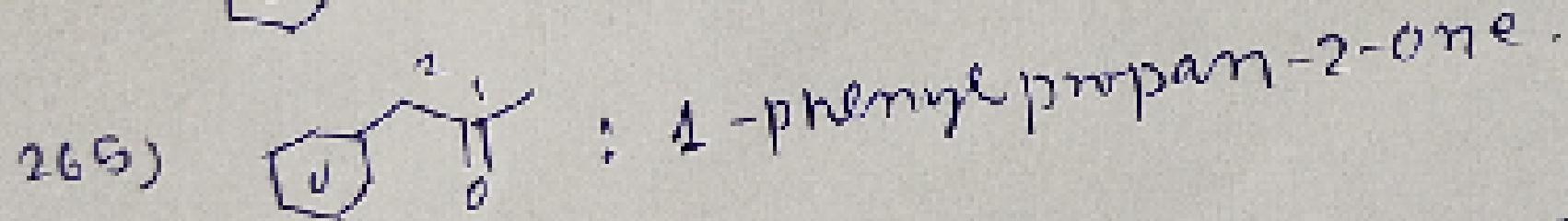
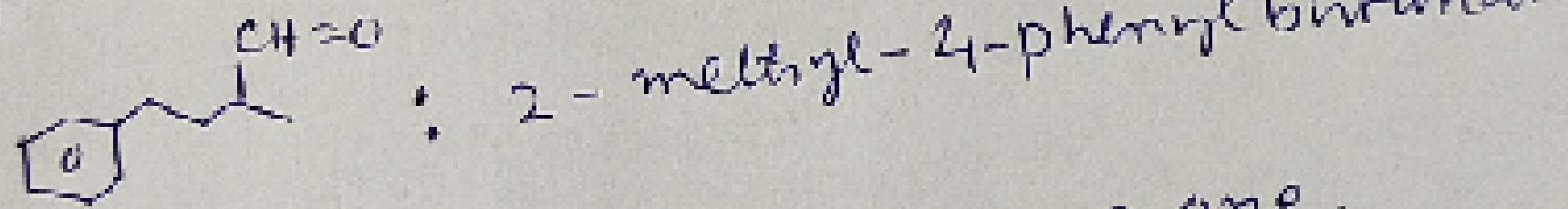
⇒ If in cycloalkane if other functional group is present with only prefix, then double bond should be at minimum carbon. (6)



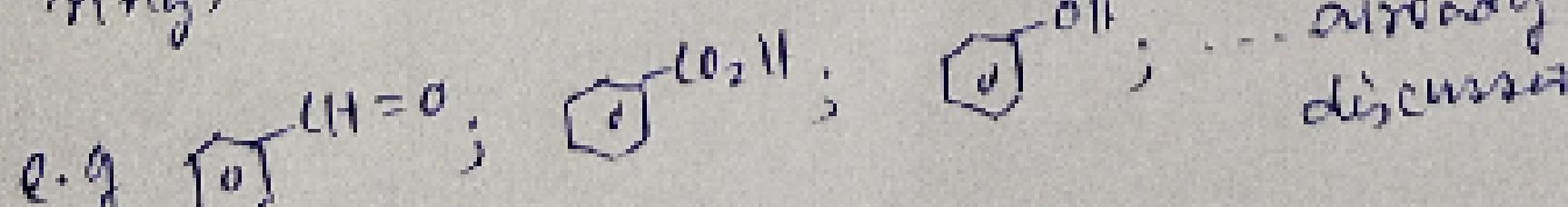
263) If cyclo double bond is present inside the ring along with functional group which has more priority than double bond, then numbering should be started with functional grp. bond, then numbering should be started with functional grp. bond.



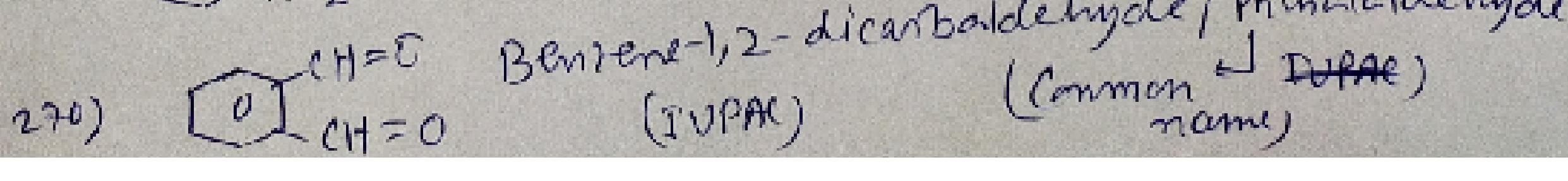
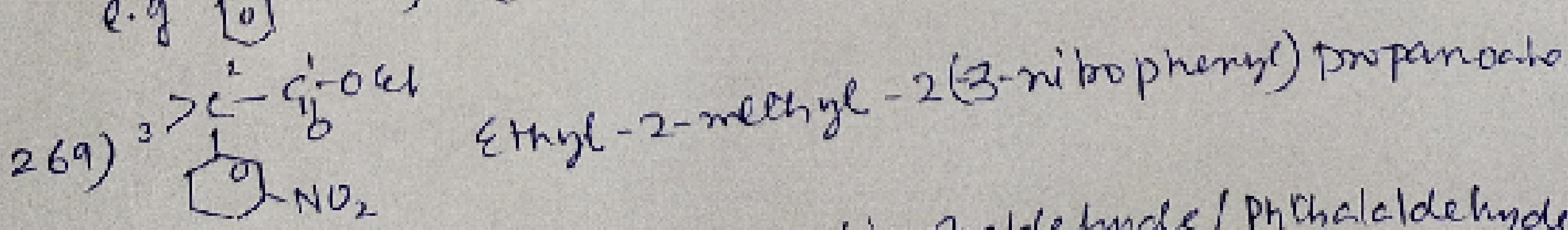
264) If functional group is not directly attached with benzene ring, then longest chain should be formed with functional grp. outside the ring. Then Ph will be used as ~~and~~ phenyl prefix.



268) If functional grp. is directly attached with benzene ring, then longest chain will be with benzene ring

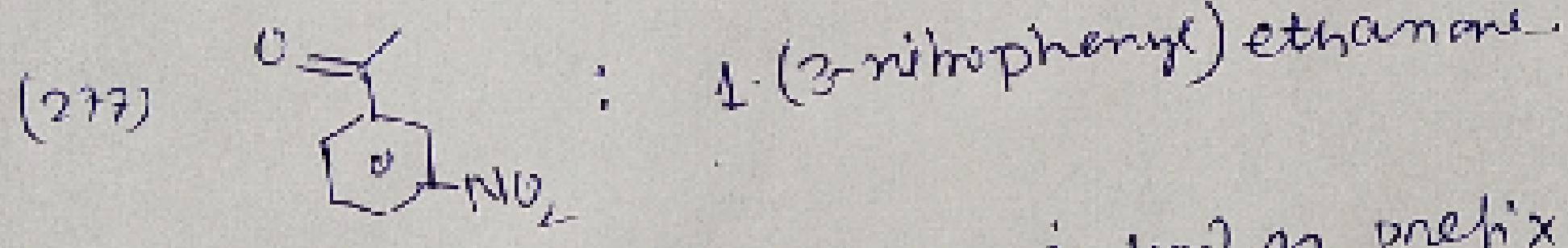
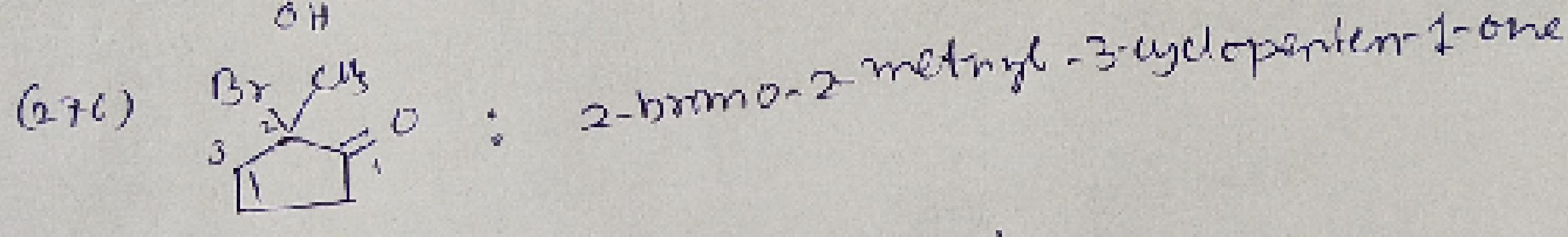
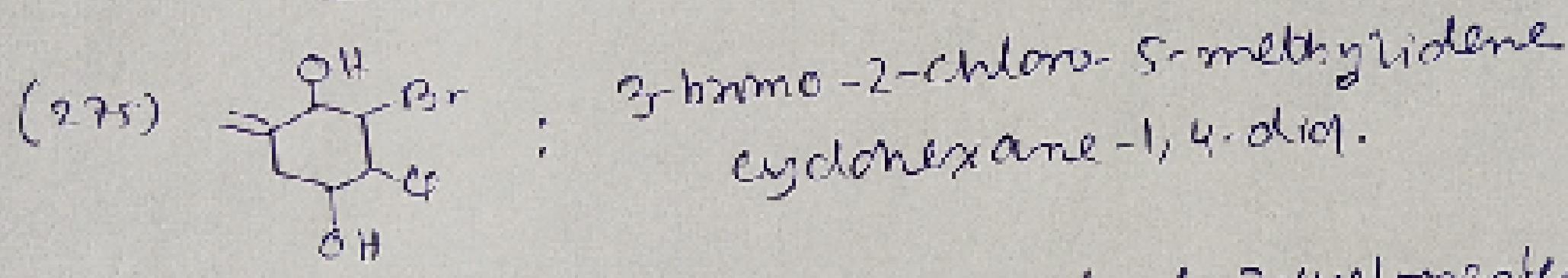
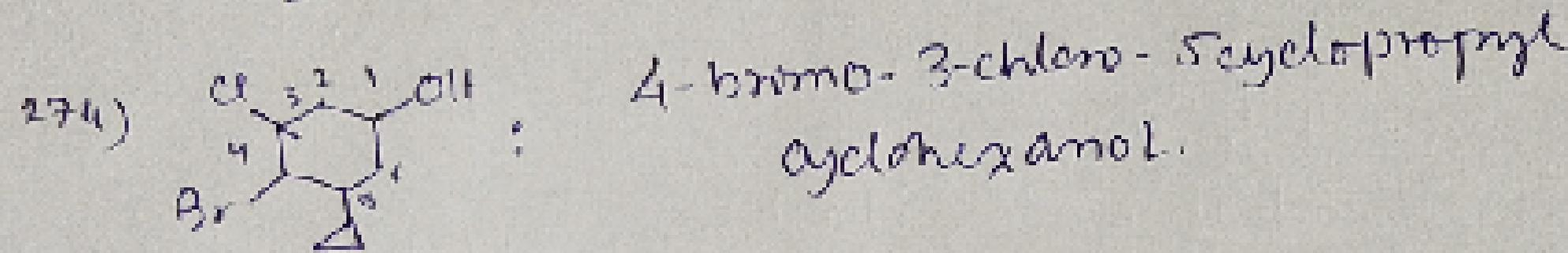
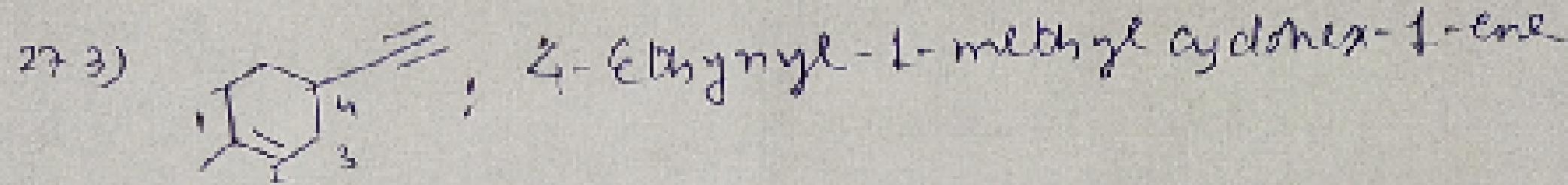
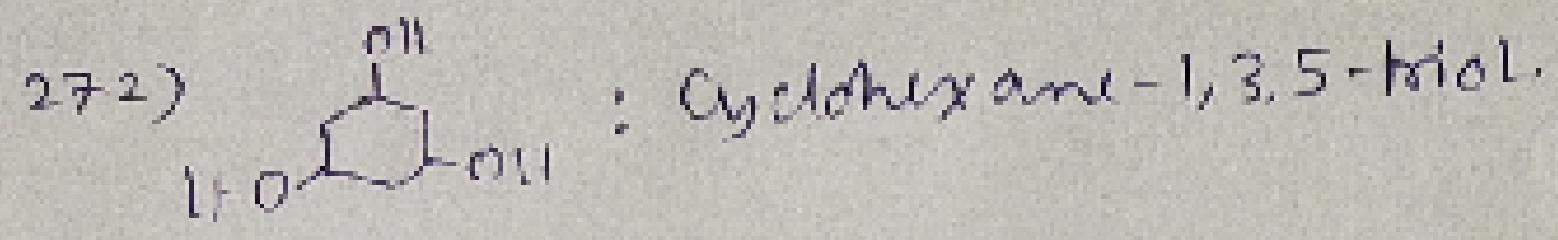
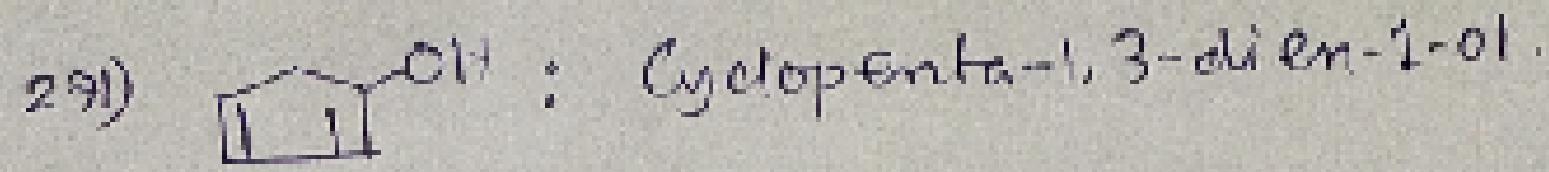


Examples  
201-245.

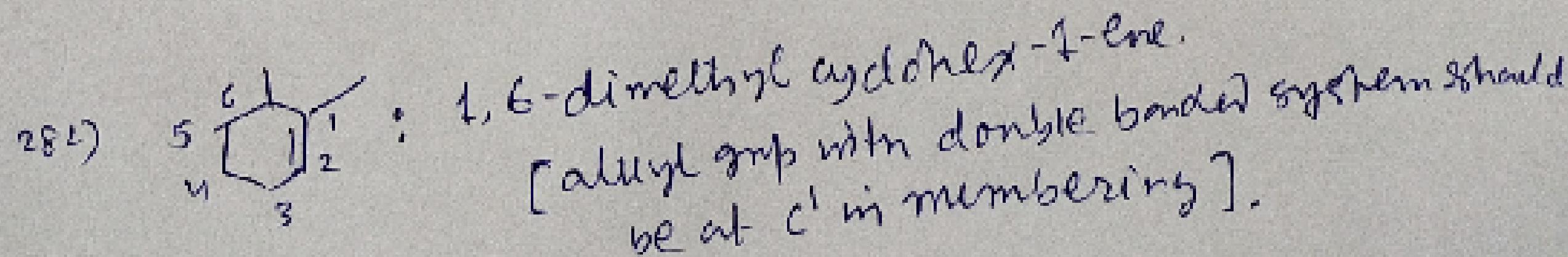
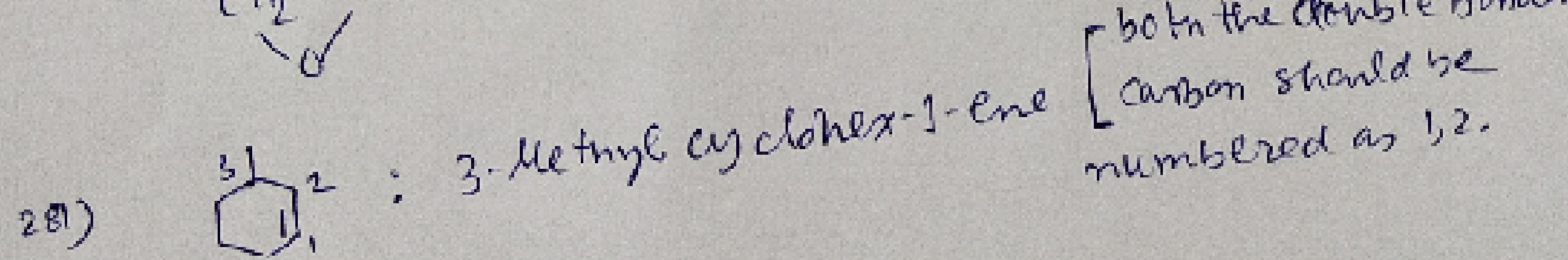
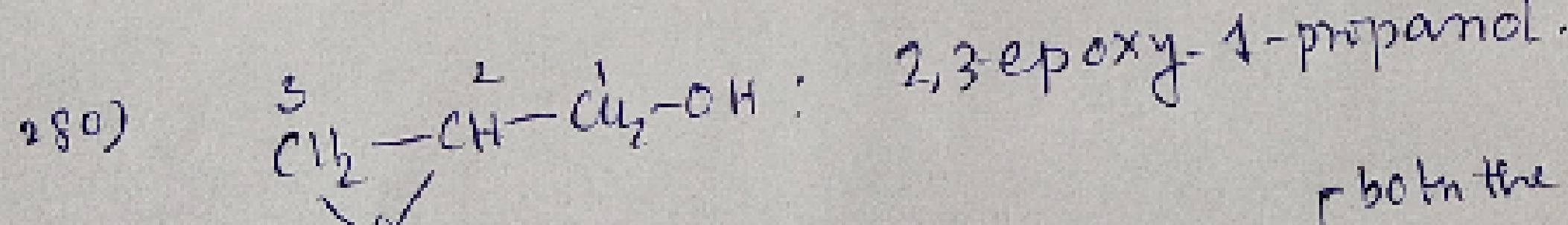
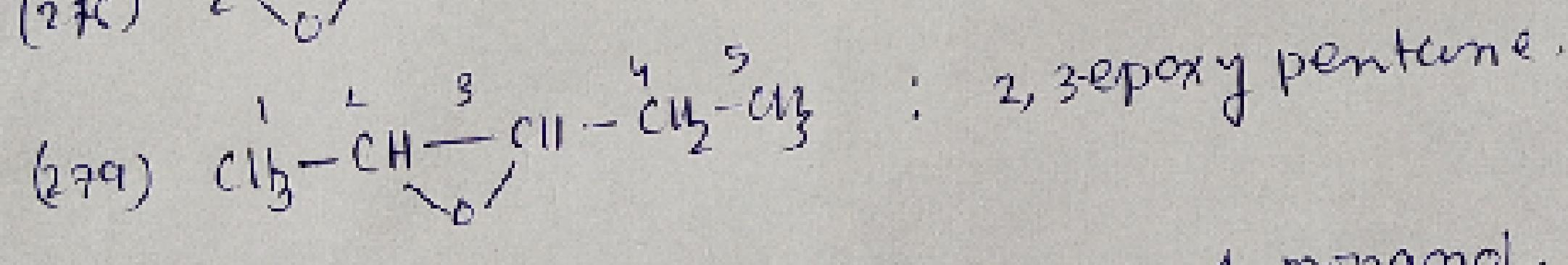
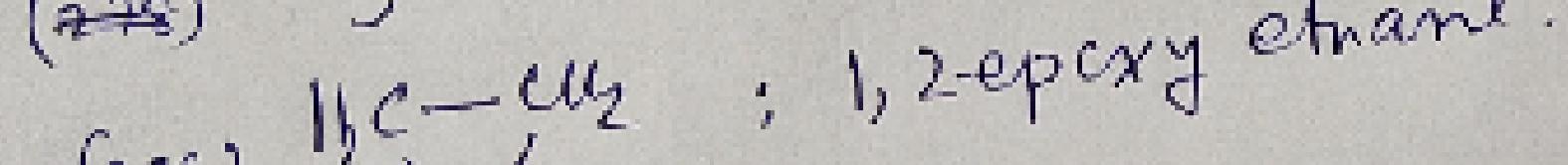


(Common name)  $\downarrow$  IUPAC

: Some examples of cyclic system: (7)

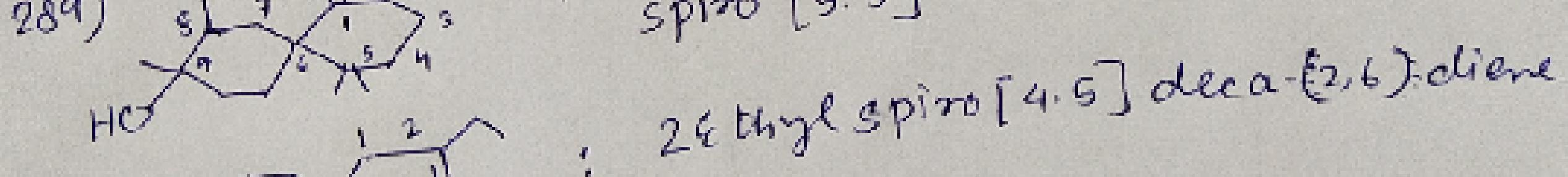
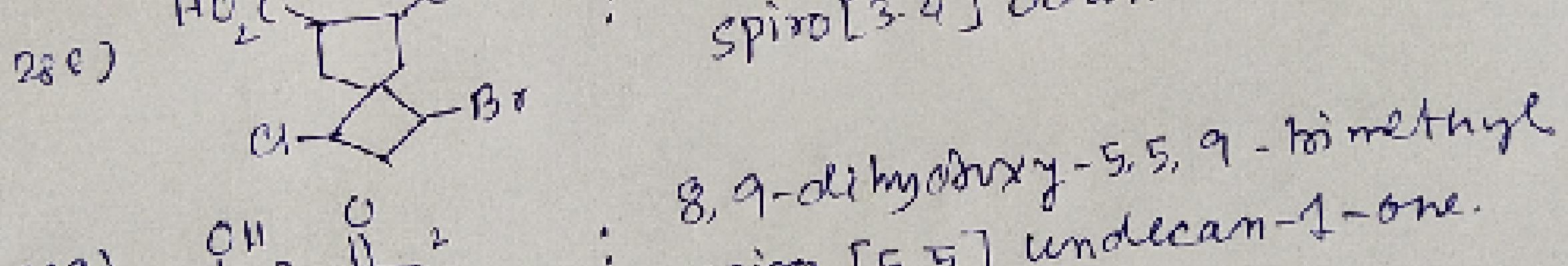
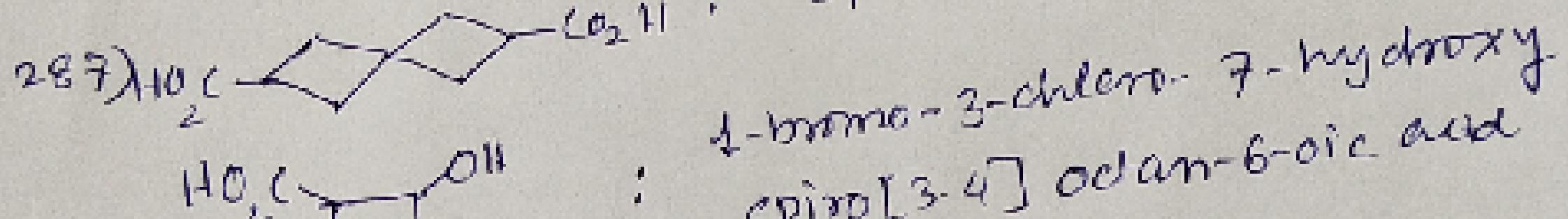
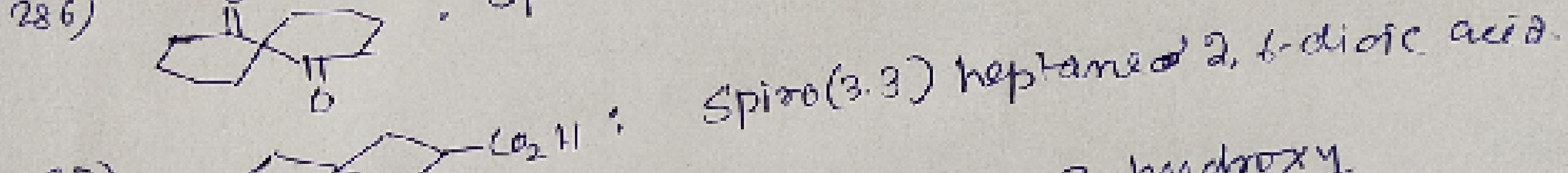
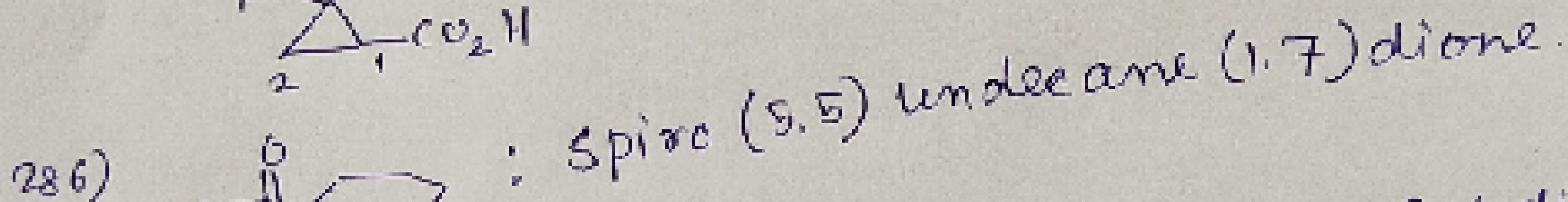
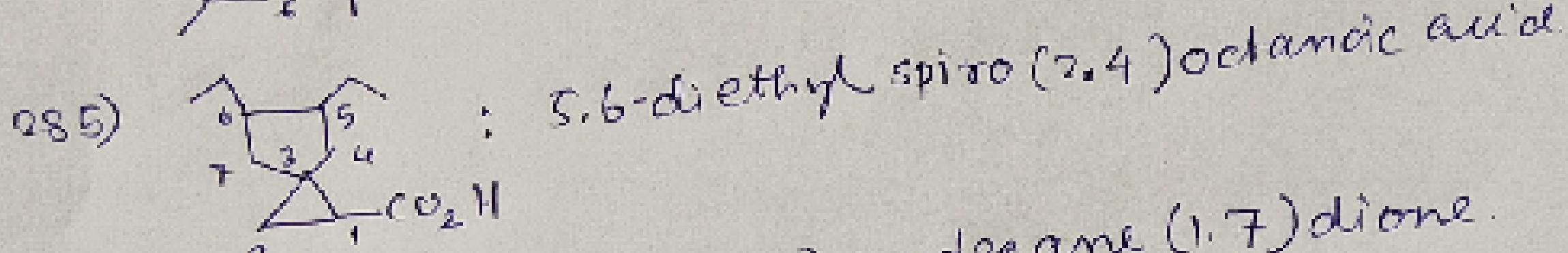
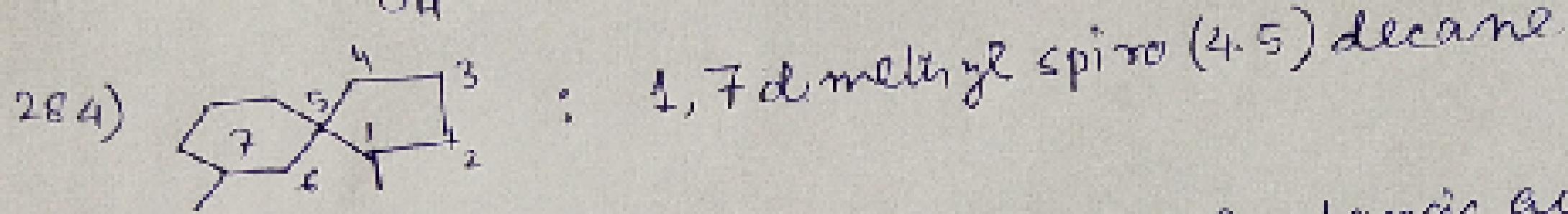
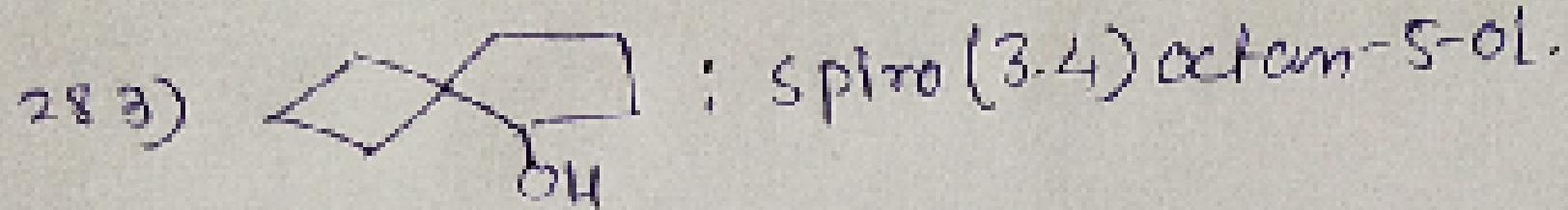
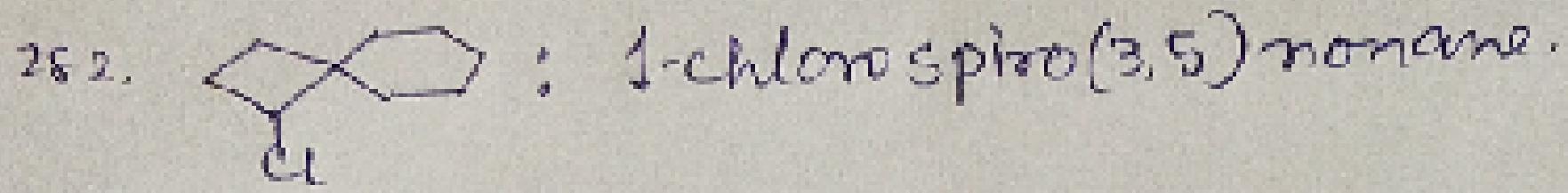
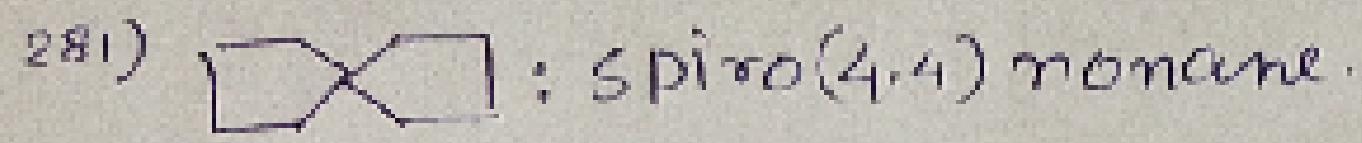


(278) : Cyclic ether: epoxy term is used as prefix.



## IUPAC nomenclature of bicyclo & spiro system: (8)

⇒ Spiro compound: [2 rings have one common atom is called spiro system].



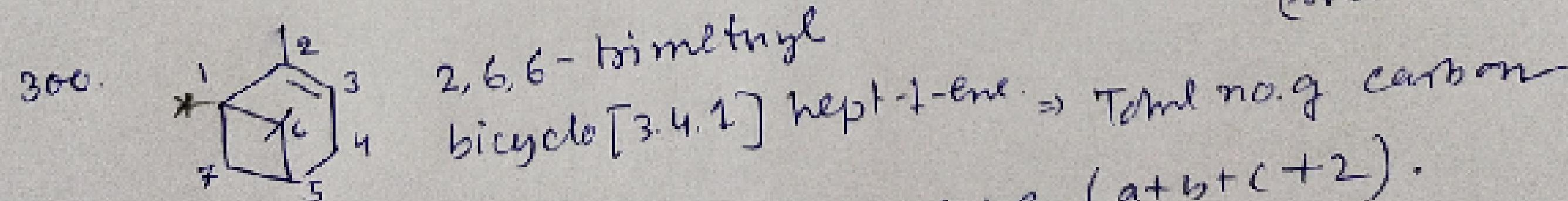
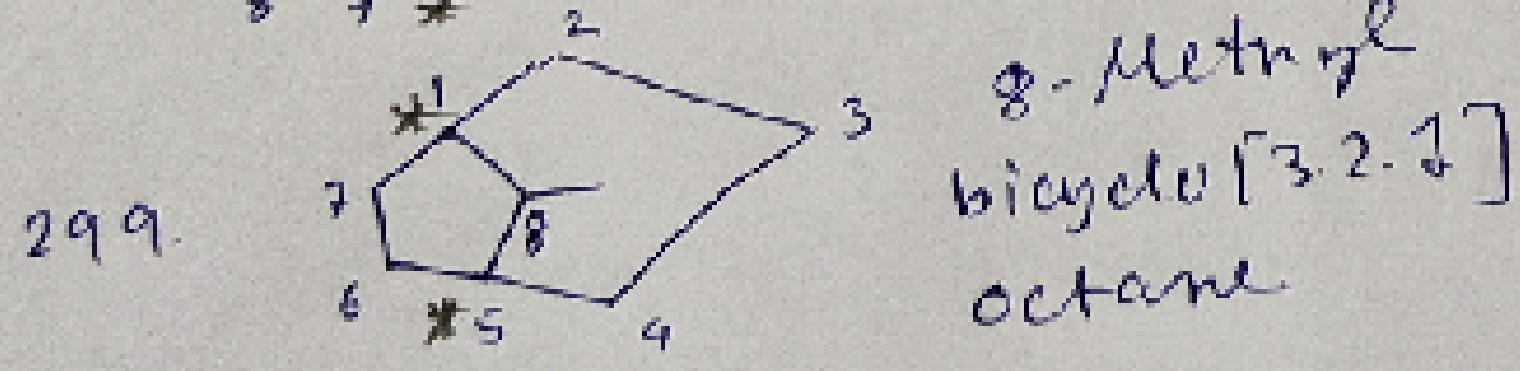
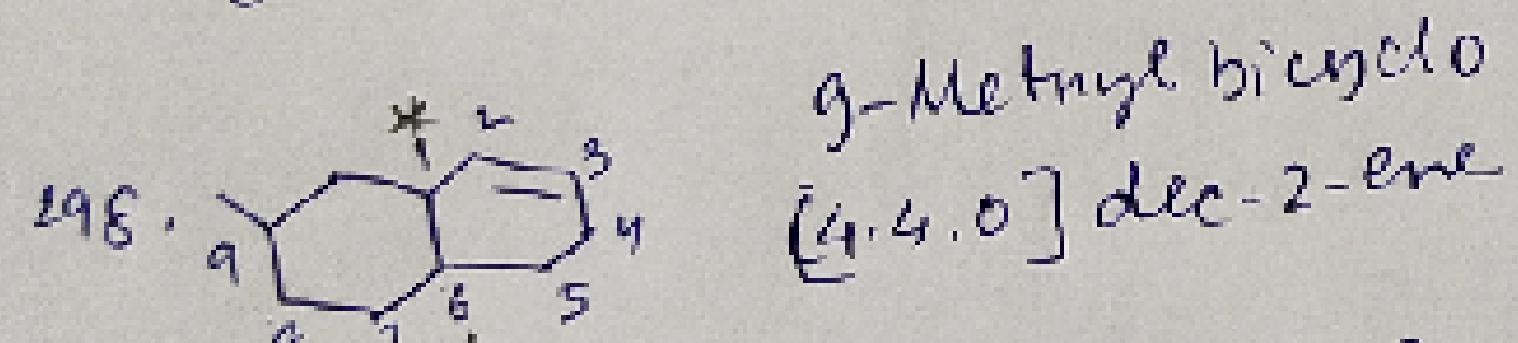
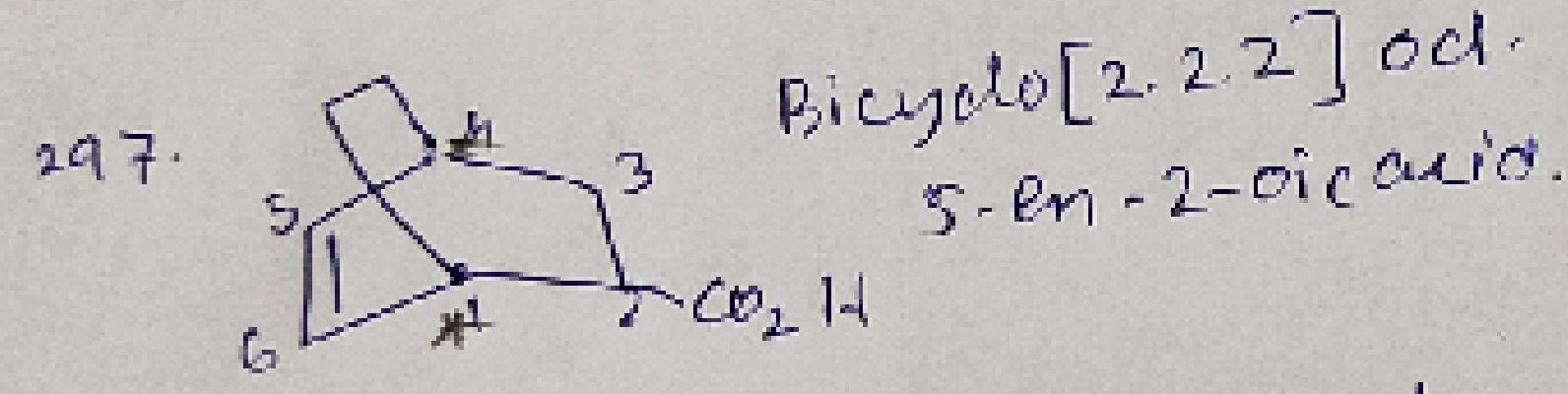
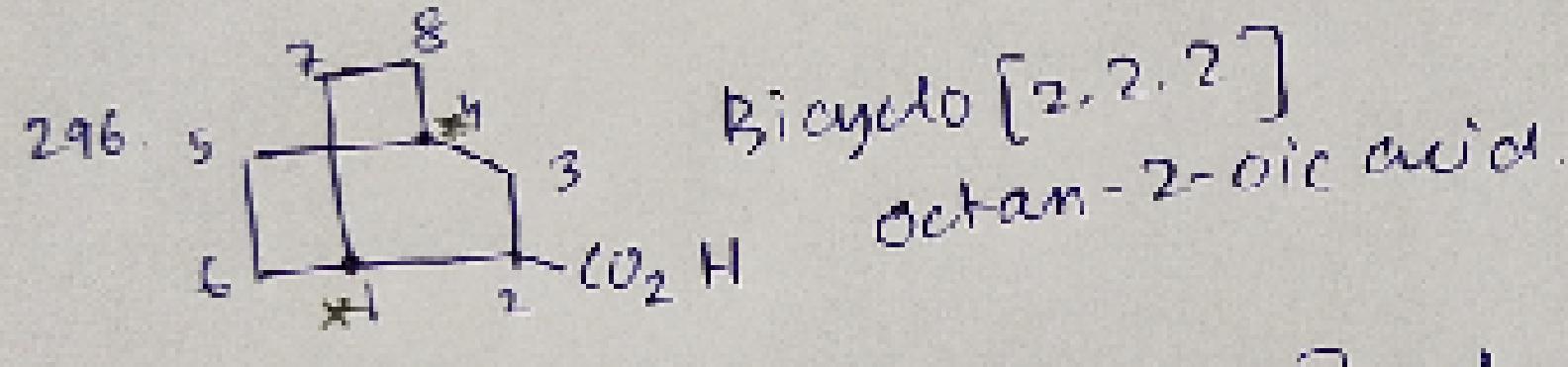
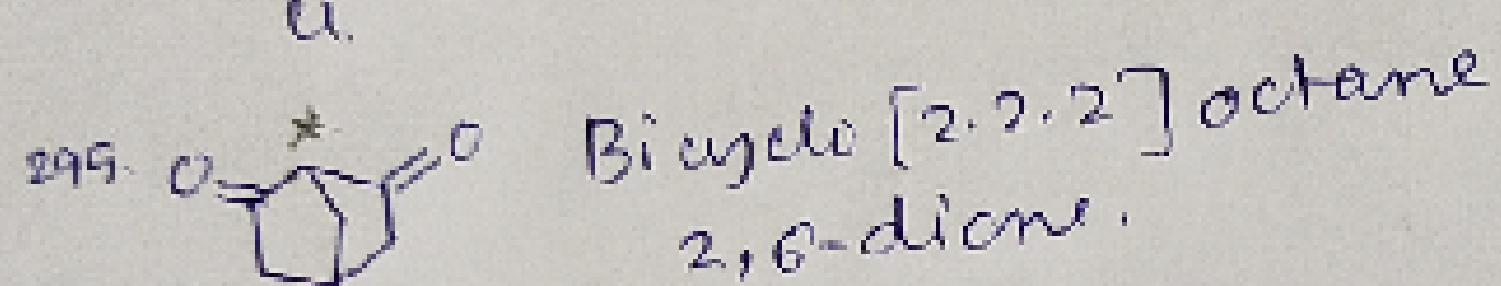
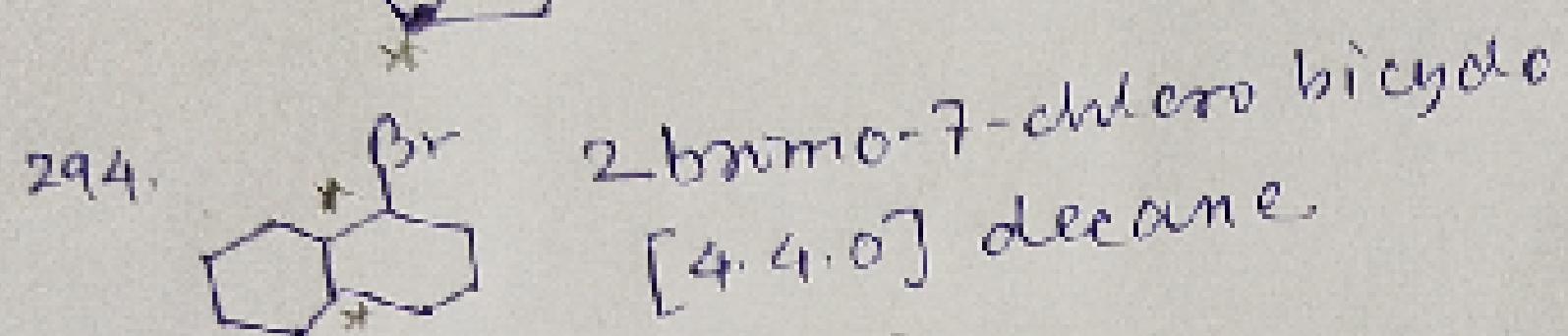
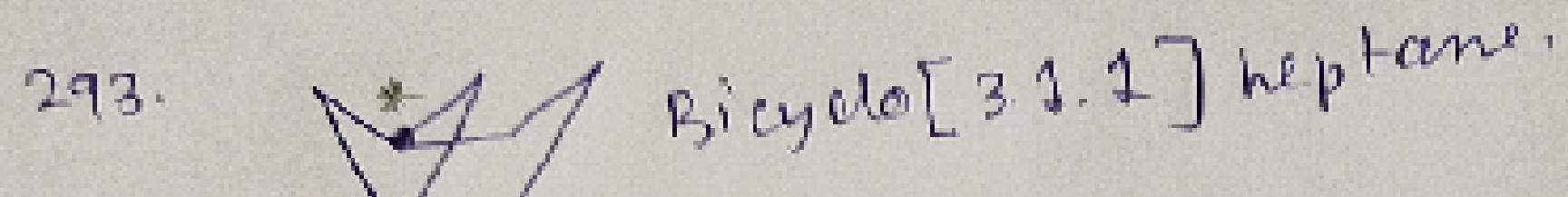
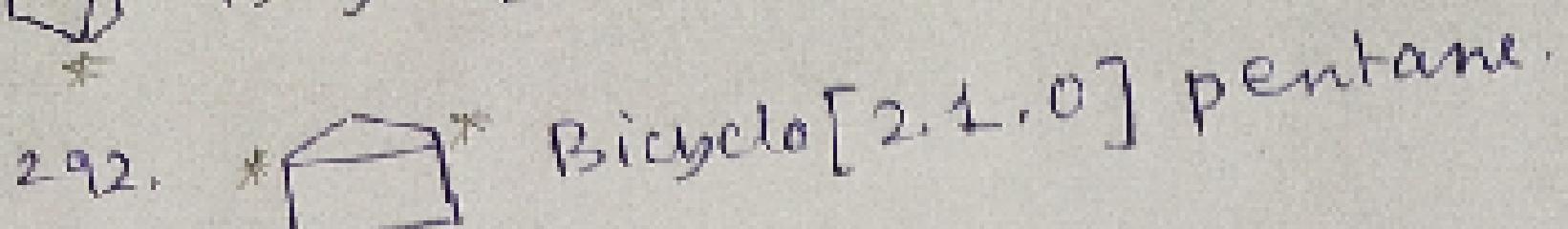
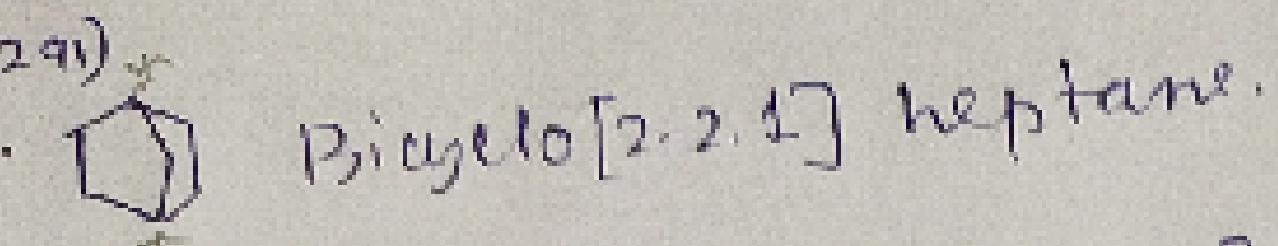
⇒ Numbering should be from next carbon w.r.t. common atom.

⇒ Irrespective of the position of functional group, numbering should be done in smaller ring & then larger ring.

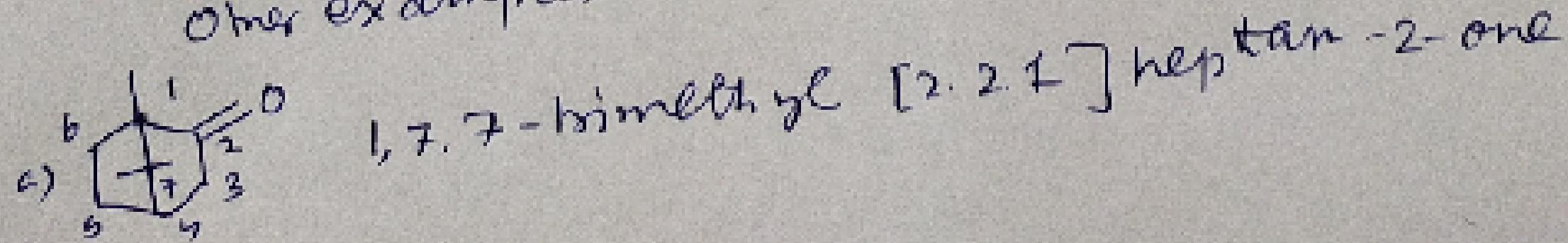
⇒ Rest thing will be according to other systems (cyclic mfg.). suffix should be at lowest no of carbon atom & summation of locants should be minimum.

⇒ spiro & bicyclo is used as prefix.

IUPAC name of bicyclo compound:



Other examples:



Rules: ①

for bicyclo compound numbering should be started with bridgehead carbon atom (given as \*).

$\Rightarrow$  After that numbering should be continued from one bridgehead atom to another bridgehead atom by travelling longest path & then shorter path & then shortest path.

$\Rightarrow$  irrespective of the position of functional group, the following above numbering should be always followed.

$\Rightarrow$  Rest part will be same as in acyclic/cyclic compound nomenclature [a,b,c].  $a \geq b \geq c$  (shortest bp)