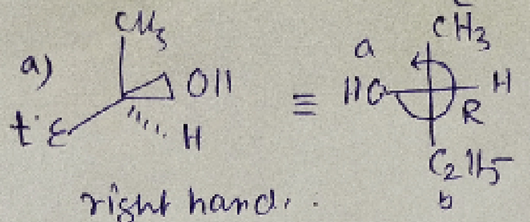
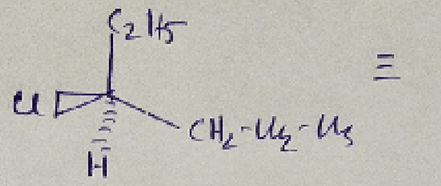
Different types of Projection (Flying Wedge Projection to Fischer Projection)

a) 

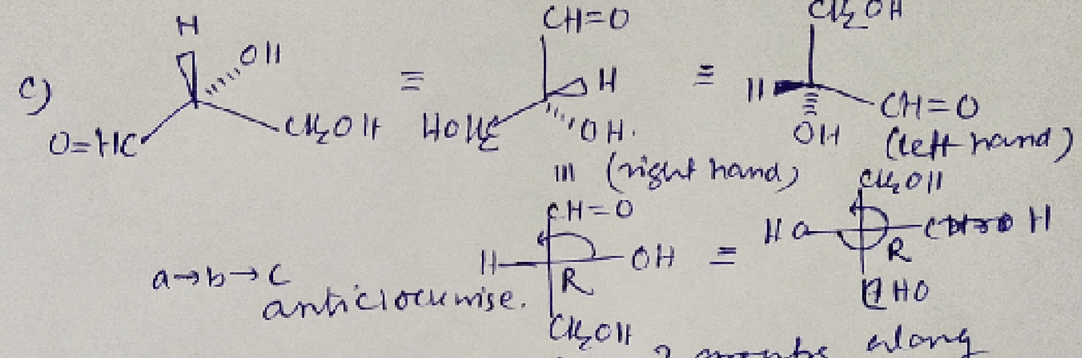
a→b→c anticlockwise.

right hand.

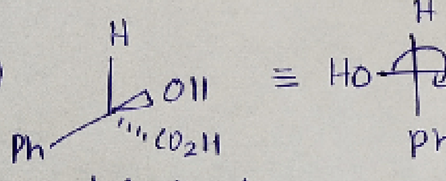
b) 

a→b→c clockwise

left hand.

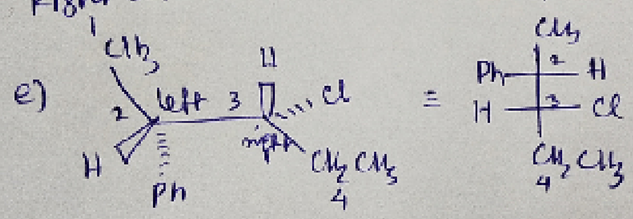
c) 

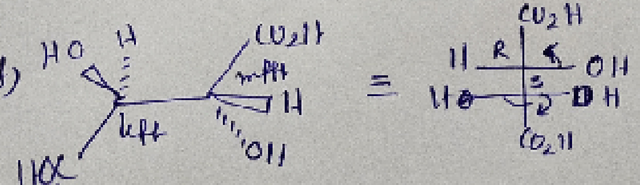
Two times interchange of any 2 groups along the same chiral centre gives identical configuration.

d) 

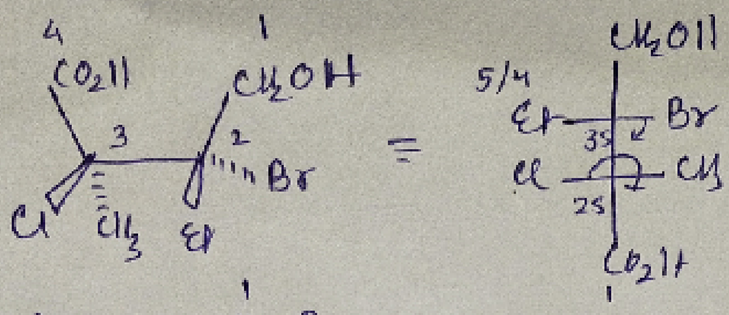
a→b→c clockwise
smallest priority group is in the vertical line.

Right ~~left~~ hand.

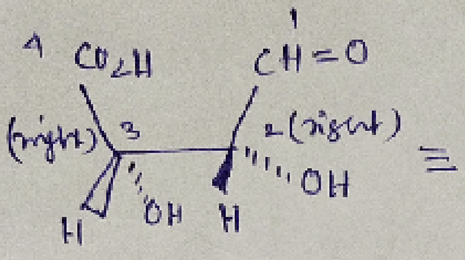
e) 

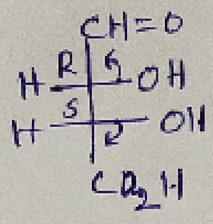
f) 

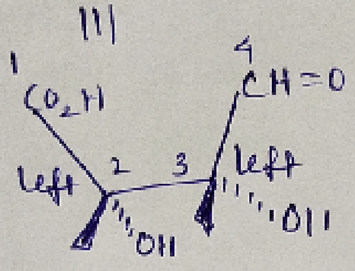
(2)

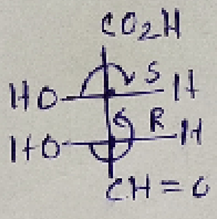


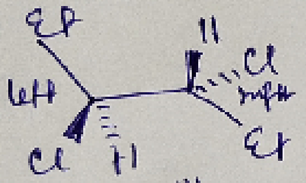
(2S, 3S) -2-chloro
3-hydroxy methyl
2-methyl pentanoic
acid.

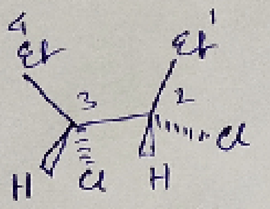


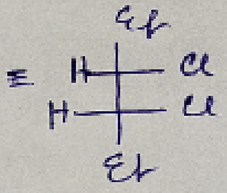




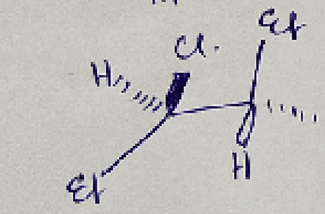


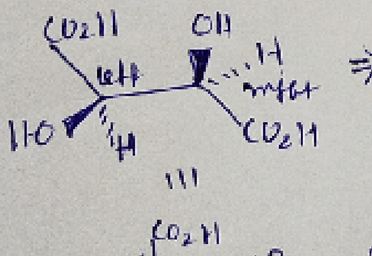


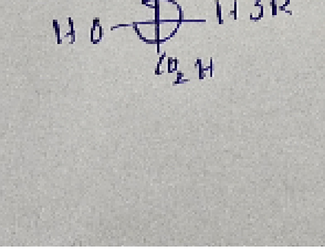




All are example of meso compound, it has both POS & COS; optically inactive due to internal compensation.





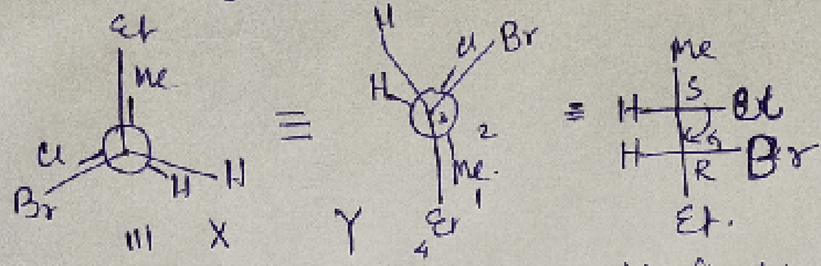


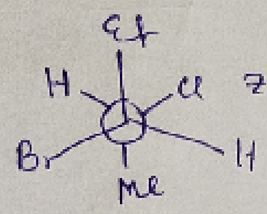
⇒ It is optically active (no POS, no COS but C_2 axis of symmetry is present)

⇒ It is example of dissymmetric molecule.

Newman Projection to fischer Projection

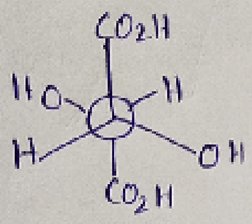
i)

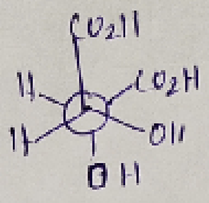




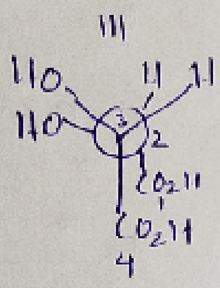
To convert with fischer Projection the Eclipsed conformation is written in the way Y is written. Here X=Y=Z.

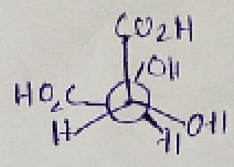
ii)

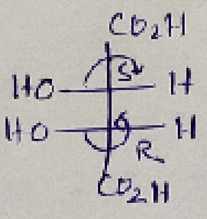




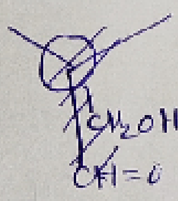
Anti form / gauche form / fully eclipsed corresponds to same str. It has POS & COS both.

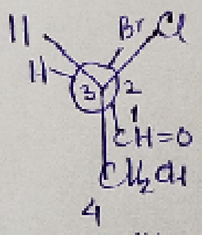


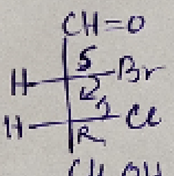




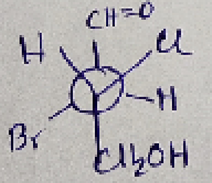
iii)

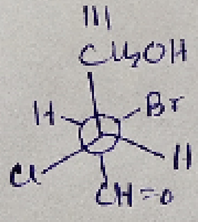


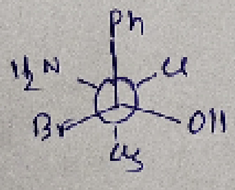


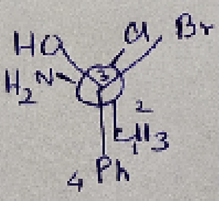


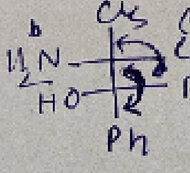
iv)





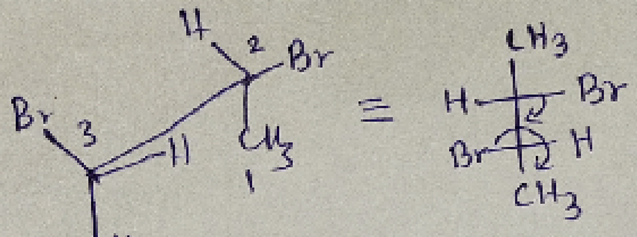




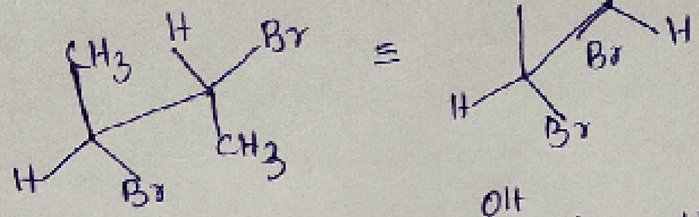


Sawhorse Projection to fischer Projection.

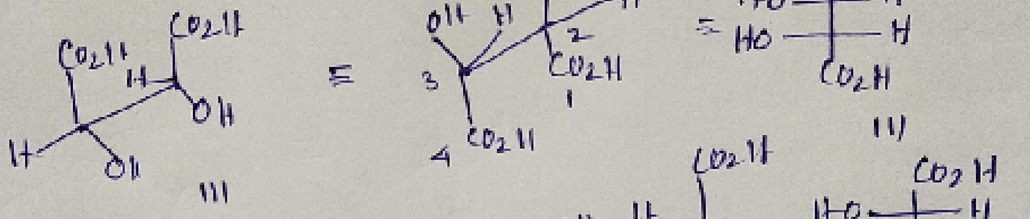
a)



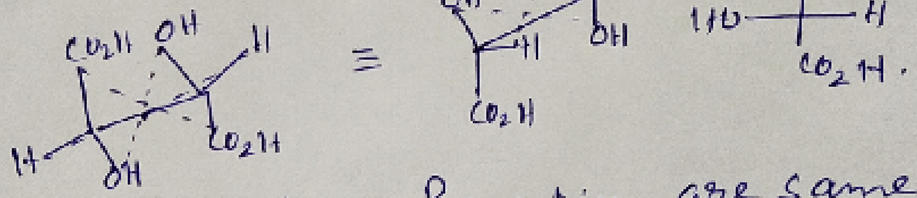
III



b)

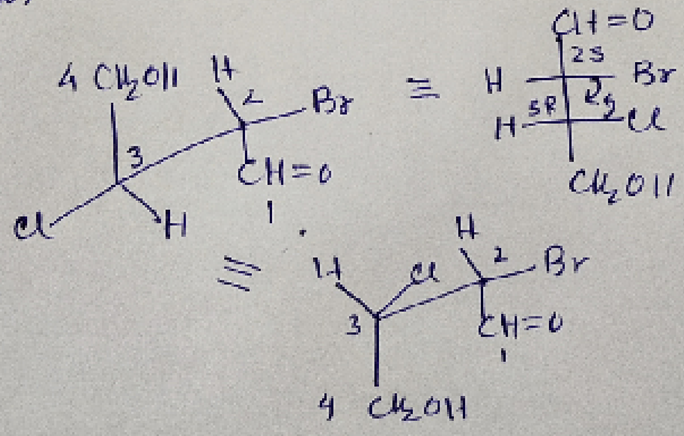


III



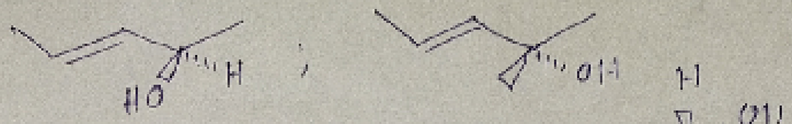
(b) All form of Sawhorse Projection are same & corresponds to same molecule which has POS & COS both, so they are optically inactive.

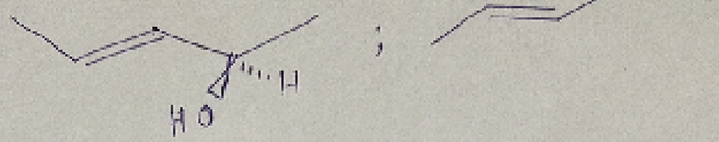
(c)

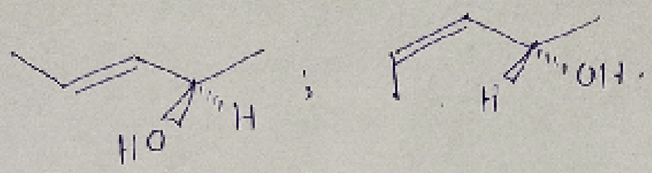


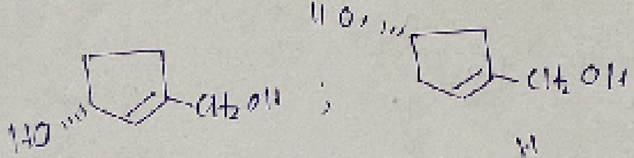
(2S, 3R) 2-bromo 3-chloro-4-hydroxy butanal.

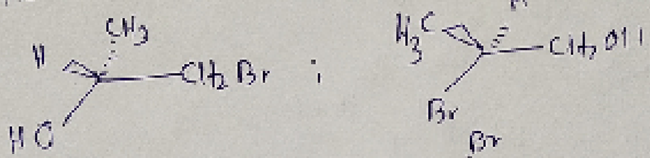
: Relationship between compounds:

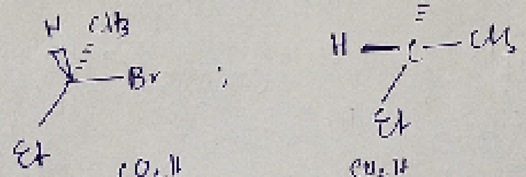
1. 

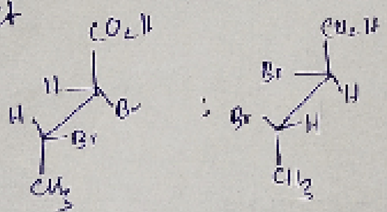
2. 

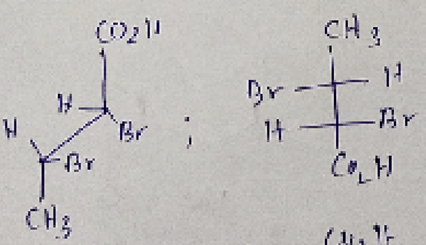
3. 

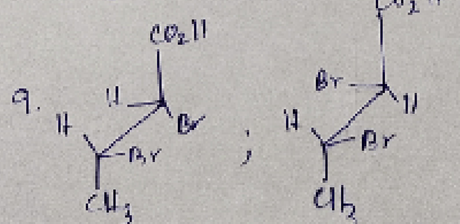
4. 

5. 

6. 

7. 

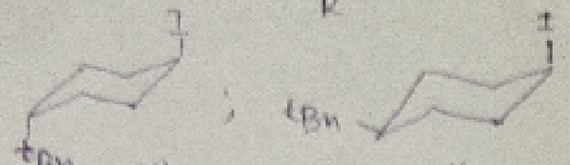
8. 

9. 

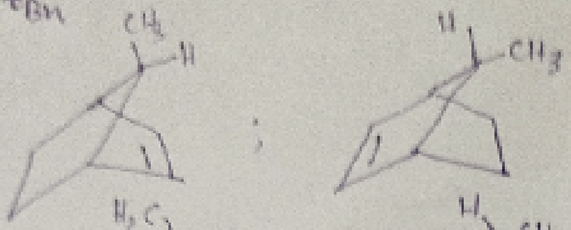
10) a) $CH_2=CH-CH_2-CH=CH_2$; $CH_3-CH_2-C\equiv C-CH_3$

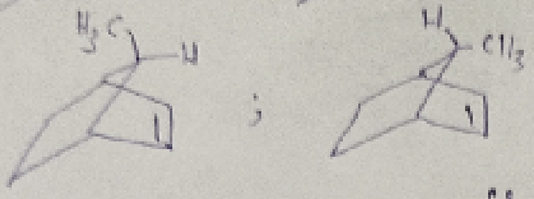
b) $(CH_3)_4C$; $(CH_3)_2CHCH_2CH_3$

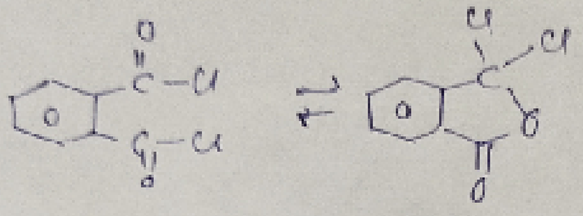
11. 

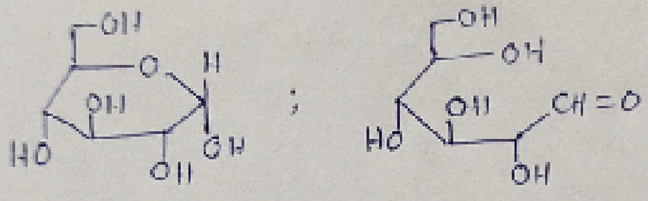
12. 

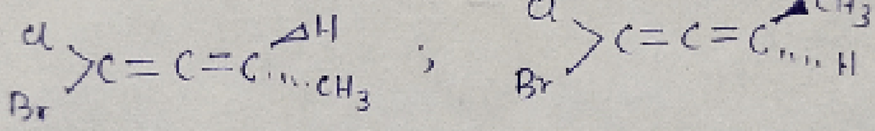
tBu = tertiary butyl, $-CMe_3$.

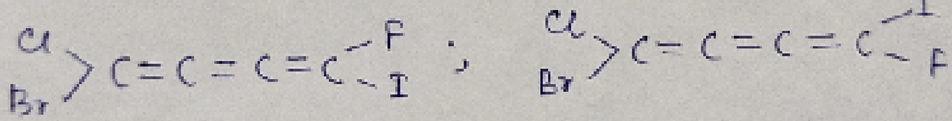
13. 

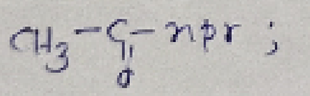
14. 

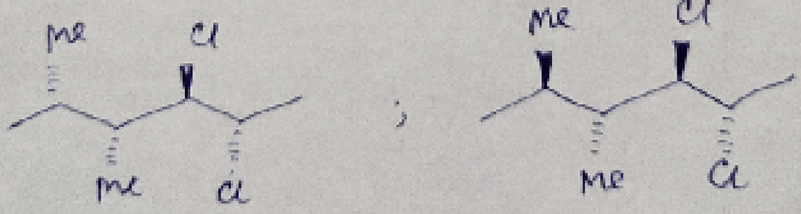
15. 

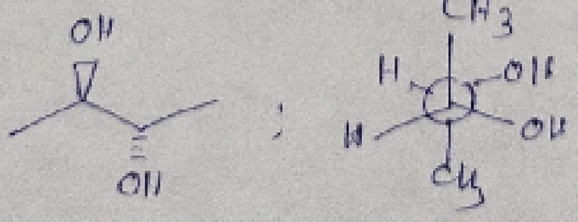
16. 

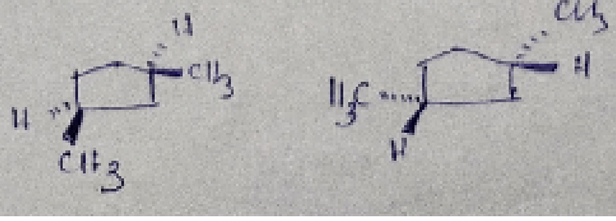
17. 

18. 

19. 

20. 

21. 

22. 

(1) Enantiomer

(2) Identical.

(3) Diastereomers.

(4) Positional / structural / constitutional.

(5) Positional / structural / constitutional.

(6) Enantiomer.

(7) Enantiomer.

(8) Identical

(9) Diastereomers.

(10) Structural / constitutional.

(11) (a) (b) Chain / structural

(12) Tautomers.

(13) Geometrical Isomers.

(14) Identical.

(15) Diastereomers.

(16) Tautomers / Anionotropy / Ringchain Tautomers.

(17) Ring chain tautomers.

(18) Enantiomers.

(19) Geometrical Isomers / Diastereomers.

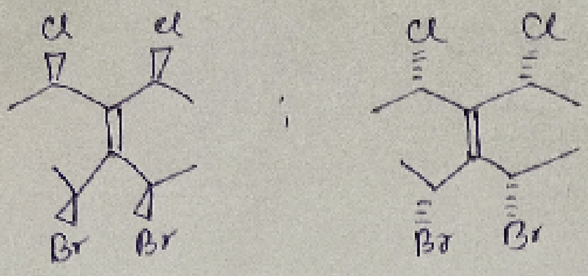
(20) Metamers / Positional isomer.

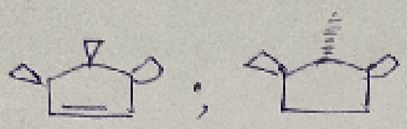
(21) Identical.

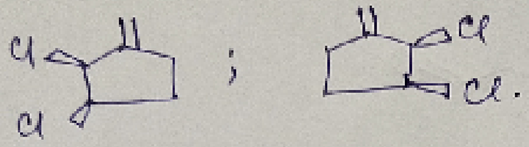
(22) Diastereomers.

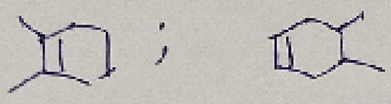
Identical.

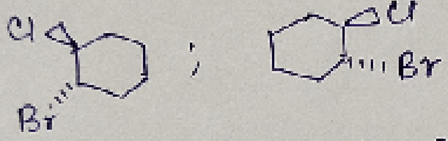
: Relationship between compounds:

1. 

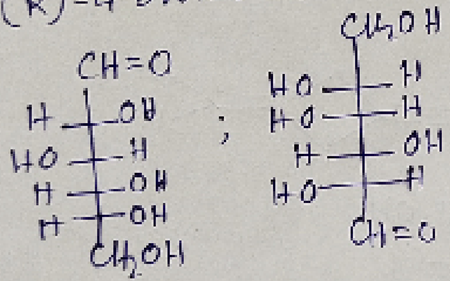
2. 

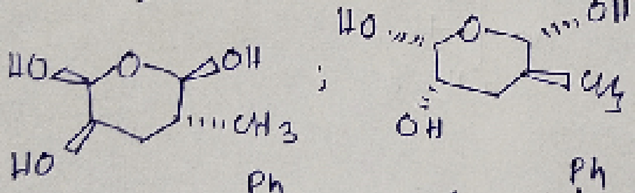
3. 

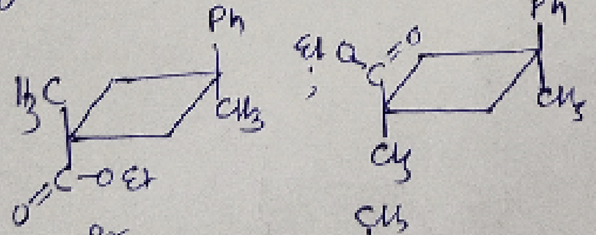
4. 

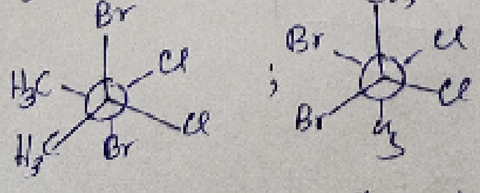
5. 

6. (R)-4-bromo Cis-2-hexene ; R-4-bromo trans-2-hexene

7. 

8. 

9. 

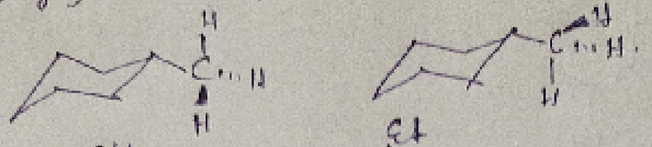
10. 

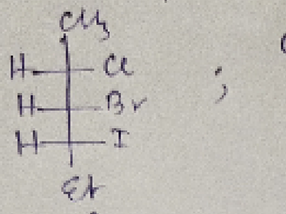
11. Phthalic Acid, Isophthalic acid.

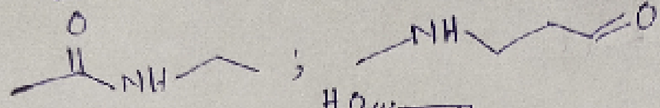
12. $BrCH_2CH_2CH_2Br$; $CH_3CH_2CHBr_2$

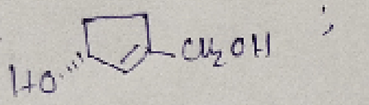
13. Mesotartaric acid; l-tartaric acid.

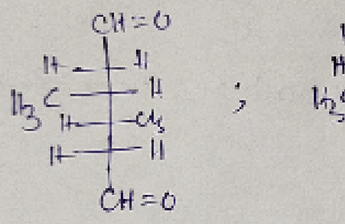
14. D-glyceraldehyde, L-glyceraldehyde.

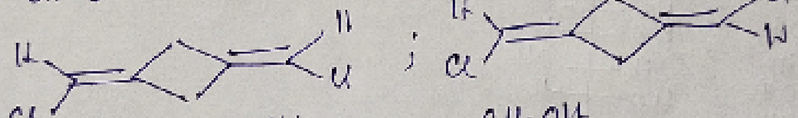
15. 

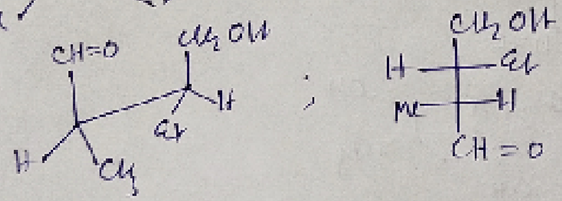
16. 

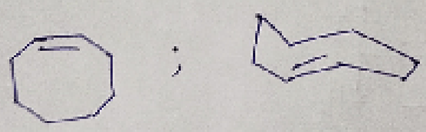
17. 

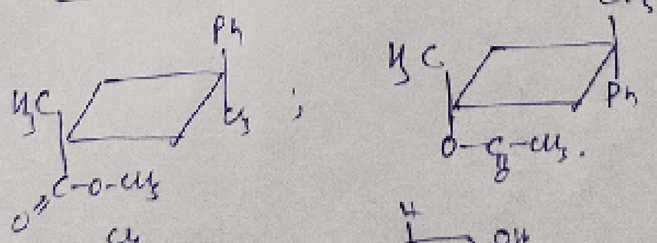
18. 

19. 

20. 

21. 

22. 

23. 

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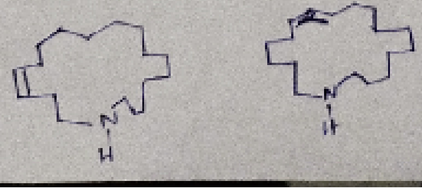
25. 

(1) Identical

(2) Diastereomers.

(3) Enantiomers.

(4) Positional (structural isomers)

(5) Enantiomers.

(6) Diastereomers.

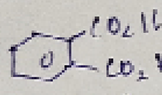
(7) Identical.

(8) Enantiomer.

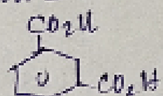
(9) Diastereomers.

(10) Conformational isomers.

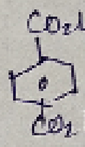
(11) Positional (structural isomers)



Phthalic Acid



Isophthalic Acid



Terephthalic Acid.

(12) Positional isomer.

(13) Diastereomers.

(14) Enantiomer,

(15) Conformational isomer.

(16) Positional (structural) isomer.

(17) functional isomer.

(18) Enantiomer.

(19) Enantiomer.

(20) Diastereomer.

(21) Identical.

(22) Diastereomer (geometrical isomers)

(23) Metamer (structural)

(24) Diastereomer.

(25) Positional (structural isomers)

RACE # 00 — ORGANIC CHEMISTRY

M.M. : 00 — TIME : 00 Min.

S.No.	Compound	POS	COS	Chiral
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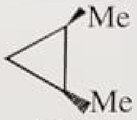
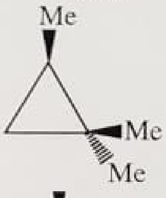
2.				
3.				
4.				
5.				
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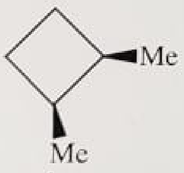
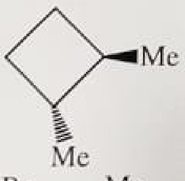
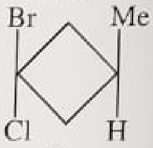
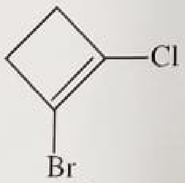
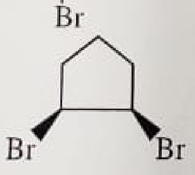
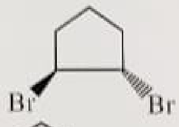
7.				
8.				
9.				
10.				
11.				

S.No.	Compound	POS	COS	Chiral
12.				
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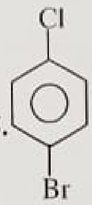
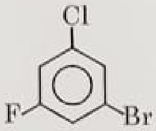
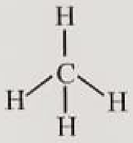
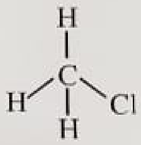
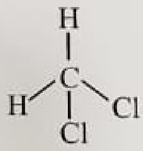
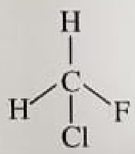
14.				
15.				
16.				
17.				
18.				
19.				
20.				
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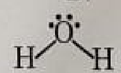
22.				
23.				

S.No.	Compound	POS	COS	Chiral
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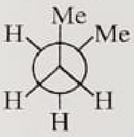
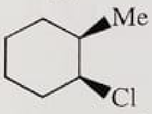
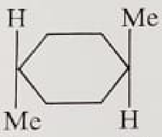
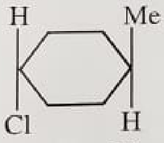
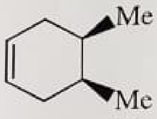
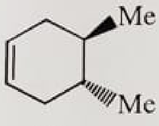
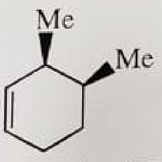
25.				
26.				
27.				
28.				
29.				
30.				
31.				
32.				
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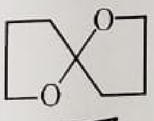
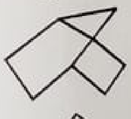
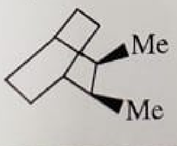
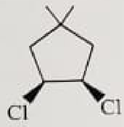
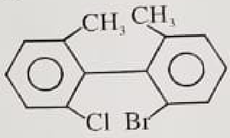
34.				
35.				
36.				

S.No.	Compound	POS	COS	Chiral
37.				
38.				
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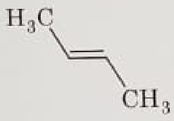
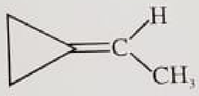
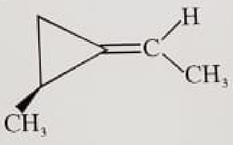
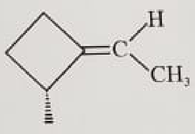
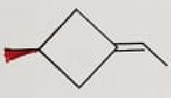
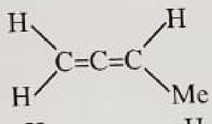
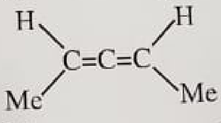
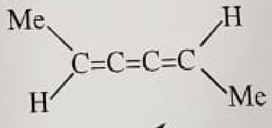
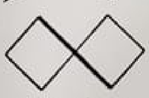
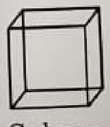
40.				
41.				
42.				
43.				
44.				
45.				
46.				
47.				
48.				
49.	 Twist boat			
50.	 Cubane			

	POS	COS	Chiral	
1.	✓	×	×	
2.	✓	×	×	
3.	✓	×	×	
4.	✓	×	×	
5.	×	×	✓	[single chiral centre].
6.	✓	×	×	
7.	✓	×	×	
8.	×	×	✓	[optically active].
9.	✓	×	×	
10.	✓	×	×	
11.	✓	×	×	
12.	×	×	✓	[enantiomer exists].
13.	✓	✓	×	
14.	✓	×	×	
15.	✓	×	×	
16.	✓	×	×	
17	✓	×	×	
18.	✓	×	×	
19.	✓	×	×	
20.	✓	×	×	
21.	×	×	✓	[single chiral centre].
22.	✓	×	×	
23.	✓	×	×	
24.	✓	✓	×	[in anti form it has COS in eclipsed form it has POS].
25	✓	✓	×	[same as above].

26.	✓	✓	×	[gauche-form is chiral but compound is achiral due to POS in fully eclipsed form & COS in anti-form].
27.	×	×	✓	
28.	✓	✓	×	[Trans isomer, POS & COS both present]
29.	✓	×	×	
30.	✓	×	×	
31.	×	×	✓	[Trans isomer ; no POS, no COS].
32.	×	×	✓	
33.	×	×	✓	[Trans cyclooctene].
34.	×	×	✓	[no POS, no COS, both rings are ⊥ to each other].
35.	✓	×	×	
36.	✓	×	×	
37.	✓	×	×	
38.	×	×	✓	[Two rings are ⊥ to eachother ; no POS].
39.	✓	×	×	
40.	✓	✓	×	
41.	×	×	✓	
42.	×	×	✓	[single chiral centre, no POS, no COS
43.	×	×	✓	[single chiral centre no POS, no COS].
44.	×	×	✓	[just like allene system].
45.	✓	×	×	
46.	×	×	✓	
47.	✓	✓	×	[both present, all terminal groups are in same plane.
48.	✓	✓	×	
49.	×	×	✓	[Twist form is optically active]
50.	✓	✓	×	but cpd is optically inactive.