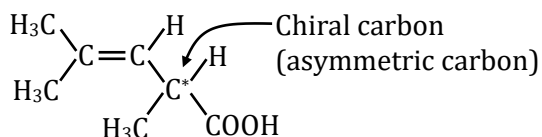


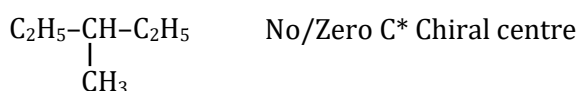
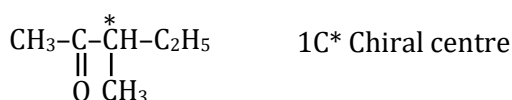
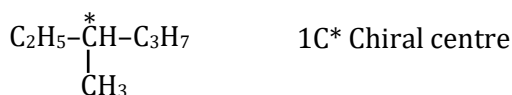
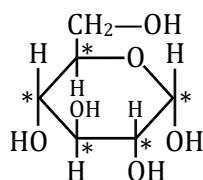
Optical Isomerism

SOLUTIONS

Exercise-I (Conceptual Questions)

1. **Ans. (2)**

One chiral centre (Asymmetric carbon present) So it will show optical isomerism.

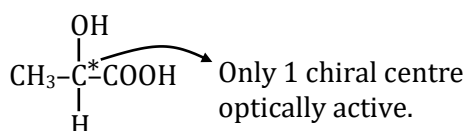
2. **Ans. (2)**3. **Ans. (4)**

Number of chiral-C $\Rightarrow$ 5

4. **Ans. (2)**

For optical active

Molecule should be chiral or unsymmetrical or Non-superimposable mirror image.
(only 2nd option follow)



Option (1) $\rightarrow$ No Chiral

Option (2) $\rightarrow$ Chiral (Op. active)
Only 1 chiral carbon

Option (3) $\rightarrow$ No chiral

Option (4) $\rightarrow$ No chiral

5. **Ans. (1)**

Meso compounds

(1) Required min.2 chiral carbon/atom

(2) Symmetry must be present (POS/COS)

(3) Optically inactive due to internal compensation or molecular symmetry

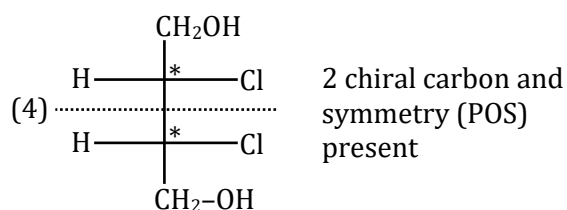
6. **Ans. (4)**

Meso compounds

(1) Required min.2 chiral carbon/atom

(2) Symmetry must be present (POS/COS)

(3) Optically inactive due to internal compensation or molecular symmetry



(1) option = 1 $\Rightarrow$ No POS/COS

(2) option = 2 $\Rightarrow$ No Symmetry

(3) option = 3 $\Rightarrow$ No Symmetry

(4) option = 4 $\Rightarrow$ P.O.S./C.O.S. present

7. **Ans. (3)**

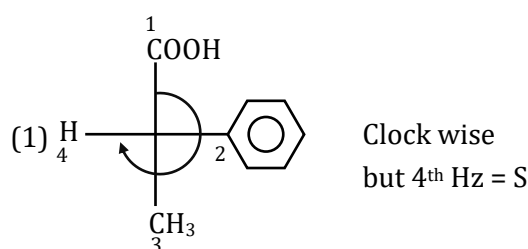
CIP rule $\rightarrow$ or sequence rule.

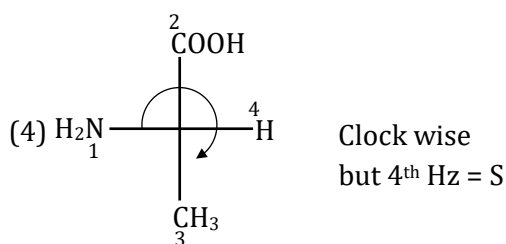
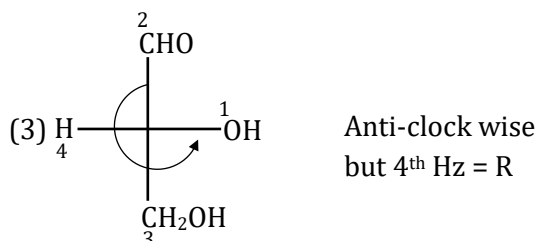
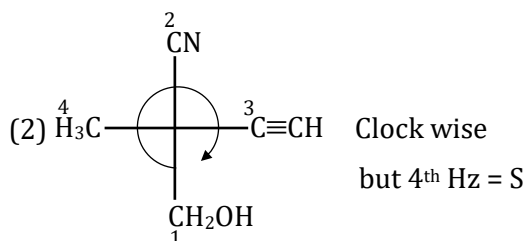
(1) Higher atomic number higher priority

(2) If atomic number is same then priority is decided by atomic mass.

(3) If atomic number or atomic mass both are same then priority is decided by next atom.

According to option





8. **Ans. (3)**

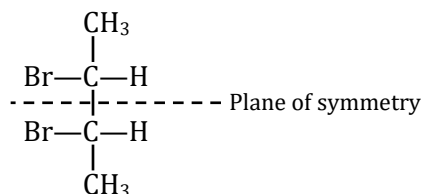
Rotation via 180° ∴ similar structure obtain or

Configuration same.

9. **Ans. (3)**

(1) and (2) have plane of symmetry, so they are optically inactive hence they form super imposable mirror images but (3) option does not have any symmetry element present in it hence it's mirror image is non-super imposable.

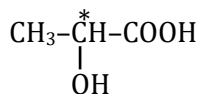
10. **Ans. (3)**



(Meso) 2, 3-Dibromobutane

Exercise-II (Previous Year Questions)

1. **Ans. (1)**

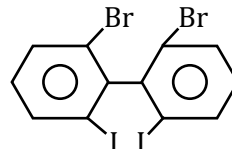


Only 1 Chiral centre/Carbon
R/S optically active enantiomer.

2. **Ans. (2)**

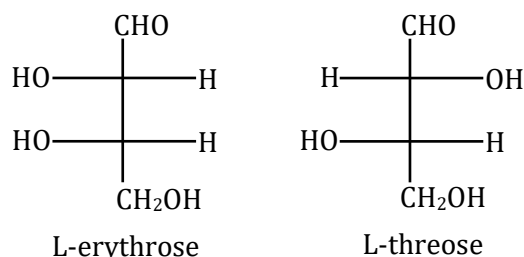
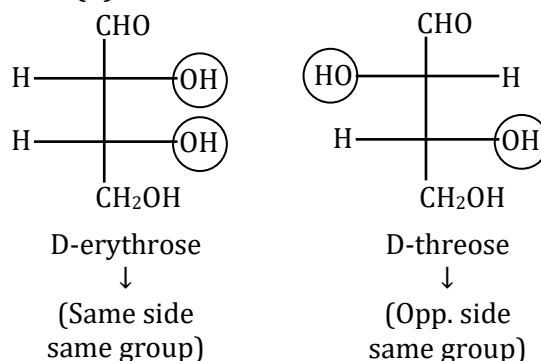
In case of Biphenyl

Ortho-ortho substituted will show optical isomerism (required diff. group each phenyl ring).



(Symmetry POS/COS absent optically active)

3. **Ans. (2)**

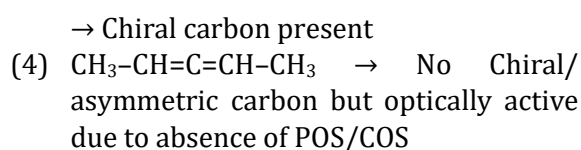
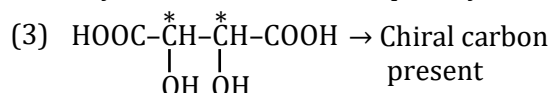
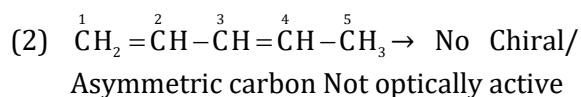
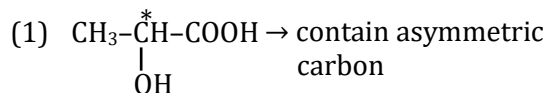


Exercise-III (Analytical Questions)

1. **Ans. (4)**

Asymmetric carbon → sp³ carbon atom attached 4-different group /atom.

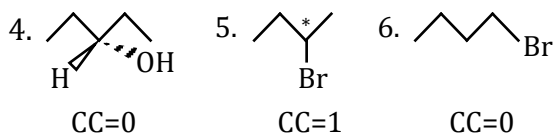
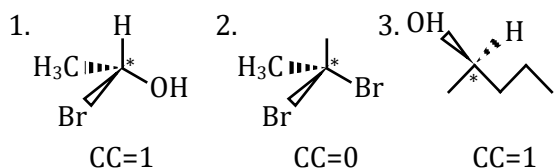
Enantiomer → Non-superimposable mirror image of each other
→ Optically active



Optical Isomerism

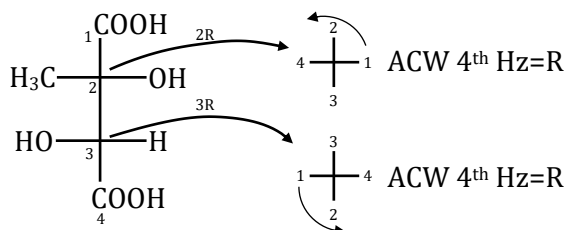
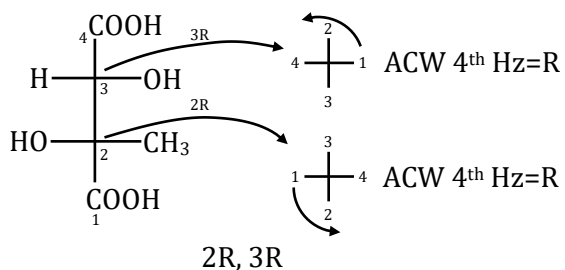
2. Ans. (3)

Chiral Atom-Any sp^3 hybridised atom attached four different group.



Total CC = 3

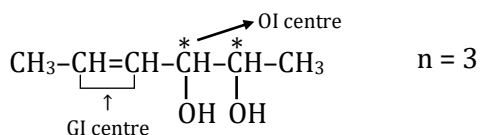
3. Ans. (4)



= Homomers or identical

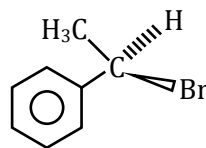
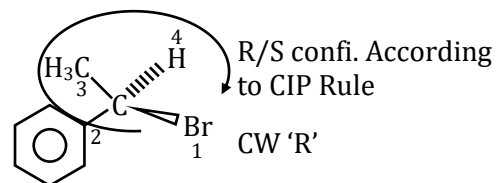
4. Ans. (4)

Total No of configuration isomer



Unsymmetrical compound = $2^n = 2^3 = 8$

5. Ans. (1)



No ring according to IUPAC
[R]-1-bromo-1-Phenyl/ethane