

Isomerism

Question1

The number of isomers possible for a dibromo derivate (Molecular weight = $186u$) of an alkene is (Br = $80u$)

AP EAPCET 2024 - 22th May Morning Shift

Options:

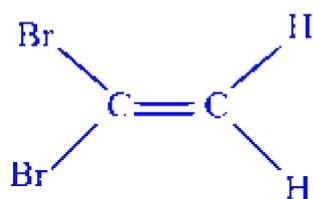
- A. 2
- B. 3
- C. 4
- D. 6

Answer: B

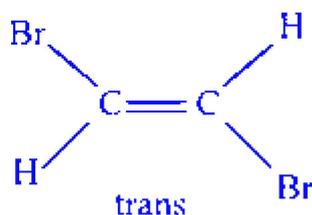
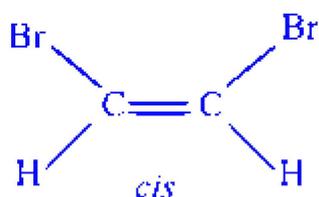
Solution:

(Molecular weight of $186u$ is of dibromoethene. It can have 3 isomers, two geometrical isomers (cis and trans) of 1,2 dibromoethene and one 1-1-dibromoethene.





1, 1-dibromoethene



1, 2-dibromoethene

Question2

Which of the following amino acids possess two chiral centres?

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Options:

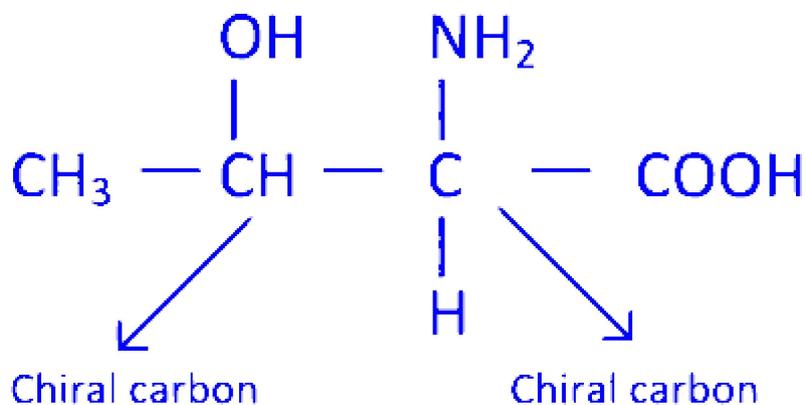
- A. Leucine
- B. Valine
- C. Serine
- D. Threonine

Answer: D

Solution:

Threonine is the amino acid which is consisted of two chiral carbons.





Chiral carbons are those carbon atoms which are attached to four different substituent (asymmetric).

Question3

Which of the following does not show optical isomerism?

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Options:

- A. $\text{cis} \{ \text{CrCl}_2(\text{C}_2\text{O}_4)_2 \}^{3-}$
- B. $[\text{PrCl}_2(\text{en})_2 \text{T}]^2$
- C. $[\text{Co}(\text{NH}_3)_3(\text{NO}_2)_3]$
- D. $[\text{Co}(\text{en})_3]^{3+}$

Answer: C

Solution:

An optically active compounds exists in two isomeric form that rotate the plane polarised light in opposite direction. This phenomenon is called optical isomerism. Among the given complexes, $[\text{Co}(\text{NH}_3)_3(\text{NO}_2)_3]$ does not show optical isomerism, because it has symmetry in its structure.



Question4

Alcohols with molecular formula $C_nH_{2n+2}O$ are isomeric with

AP EAPCET 2021 - 20th August Evening Shift

Options:

- A. acids
- B. ethers
- C. esters
- D. aldehydes

Answer: B

Solution:

Alcohols are functional group isomers of ethers.e.g. CH_3CH_2OH and $CH_3 - O - CH_3$ both have same molecular formula but different functional group.

Question5

The number of optical isomers possible for 2-bromo-3-chloro butane are

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Options:

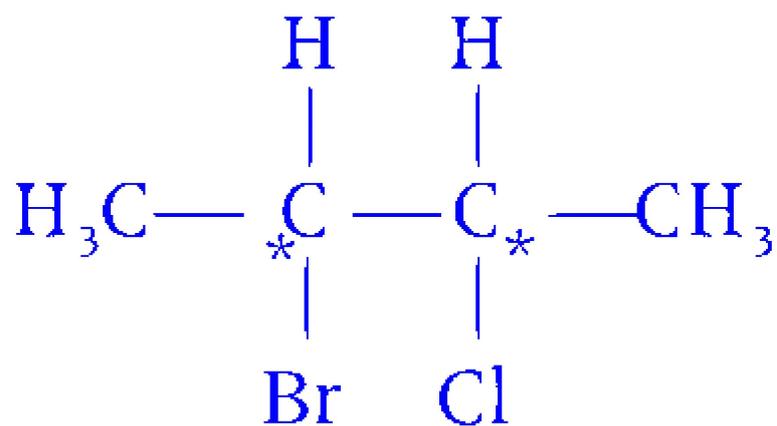
- A. 8
- B. 10
- C. 4
- D. 2

Answer: C

Solution:



Formula of optical isomer in symmetrical structure = 2^n , Here, n = number of chiral center.



There are two chiral center present in 2-bromo,3- chloro butane.

Hence, n = 2

Number of optical isomer is = $2^n = 2^2 = 4$

