

ISOMERISM II

1. Illustrate the use of Camphor derivatives in asymmetric synthesis
2. Illustrate the use of enzymatic reactions in asymmetric synthesis
3. With appropriate example, illustrate the use of (a) an L-amino acid & (b) a carbohydrate as chiral pool members for the chiral molecules.

[D-12684, January-2006]

4. With suitable example, illustrate the use of natural carbohydrate as a chiral pool in synthesis of chiral molecules
5. What is chiral auxiliary? Explain its use in chiral synthesis with an example.
6. Illustrate the use (i) tartaric; (ii) chiral Ru catalyst; (iii) Oxazolidinone & (iv) chiral sulfoxide in asymmetric synthesis

[D-2807, January-2007]

Write the structure of the lithium derivative of di-(1-Phenylethyl) amine. What is the use of this chiral reagent.

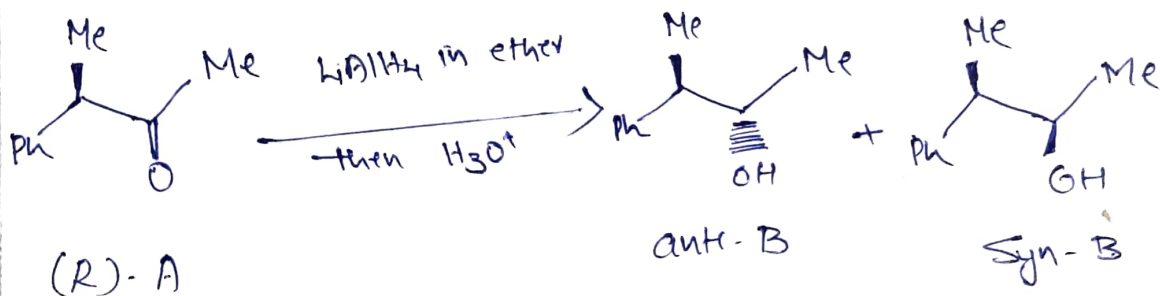
8. What is a chiral pool? Illustrate with a suitable example. What is the significance in relation to asymmetric synthesis?

9. Explain with an example the use of a chiral auxiliary in Organic Synthesis

[D-2035-A, December - 2009]

10. Differentiate between chiral reagents & chiral catalysts

11. Reduction of the chiral ketone (R)-A with LiAlH_4 gives the following products as indicated below. Predict the major product. Rationalise the stereo-selectivity observed using Felkin-Anh model



12. What are chiral auxiliaries? What are the criteria for choosing an effective chiral auxiliary? Illustrate the use of camphor derivatives as chiral auxiliaries in Diels-Alder reaction.

(D-9371, November - 2010)

Show the structure of one ruthenium catalyst with
R BINAP

14. Discuss the role of the following chiral reagents.

a) BINOL

b) Lithium di(1-phenylethyl) amide

[D-22456, January 2012]

15. Explain the term chiral pool with an example
Show their application in asymmetric synthesis

16. Explain with an example the use of BINOL in
asymmetric synthesis

[D-34019, February 2013]

17. Explain Felkin-Ahn model for Cram's rule. Use
structural diagram.

18. Discuss the use of α -amino acids as a chiral pool
in the asymmetric synthesis of benzodiazepines

19. What are chiral reagents? Using typical examples,
illustrate their use in asymmetric synthesis

[D-33395, February 2013]

20. Explain Cram's chelation control in reaction of
chiral ketones with carbon nucleophiles

21. Explain the use of (a) BINOL,

(b) Oxazolidinones

(c) BINAP based Phosphines in asymmetric synthesis

22 Illustrate with an example the use of sugars as a chiral pool in asymmetric synthesis

[D 53044, January-2014]

23 How does Felkin-Ahn model serves as alternative to Cram's rule?

[D.22925, January 2012]

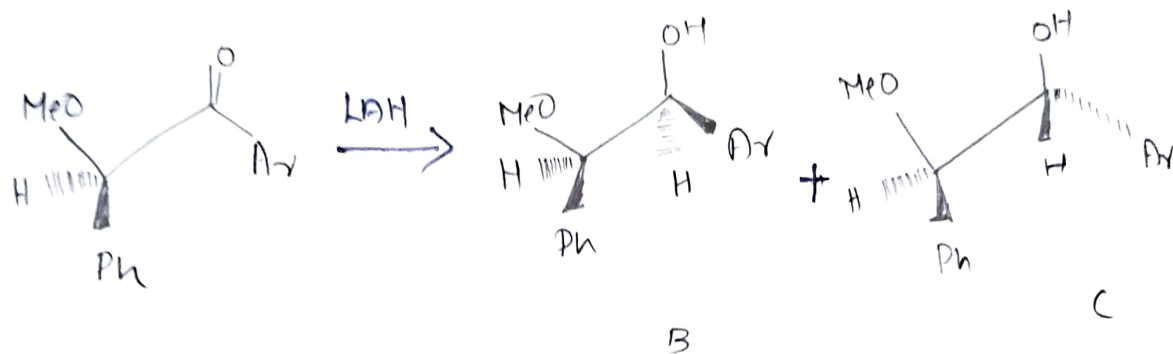
24 Show an example where Cram chelation control is adopted in an asymmetric synthesis

[D.10862, January 2011]

25 Choosing an appropriate starting material how the Cram's rule is helpful in predicting the diastereo selectivity in carbonyl additions. Can we call this reaction as a case of asymmetric synthesis? Justify your answers.

[C1722, April 2000]

In the LiAlH_4 reduction of A shown below use Cram's chelation control model to predict whether B or C would be the major product. An explanation to account your choice must be provided.



[D-28070, January 2007]

27 Explain how Cram's rule can be used to predict the preferred diastereomeric product from the reaction of optically active $\text{R}^1\text{R}^2\text{R}^3\text{-CO}^2\text{Me}$.

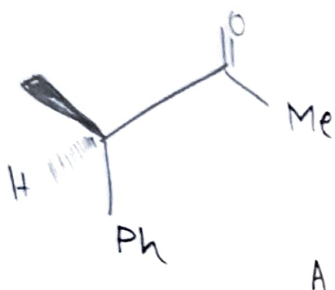
[C-26222, April 2003]

28 Explain Cram's rule & its application

[C-5981, April 1999]

29. Write the structure of (R)-(+)-BINAPRu(OAc)₂ & an example of its use in asymmetric reduction.

Draw the structure of the Cram rule model for the LiAlH_4 reduction of A & predict the major product



31. Illustrate the use of camphor derivatives in asymmetric synthesis.

[D-12684, January 2006]

32. What is meant by second generation method of asymmetric synthesis?

[D-22925, January 2012]

33. What is the use of $[\text{Ph-CH(Me)}]_2\text{NH}$ as a chiral reagent?

34. Explain Cram's rule

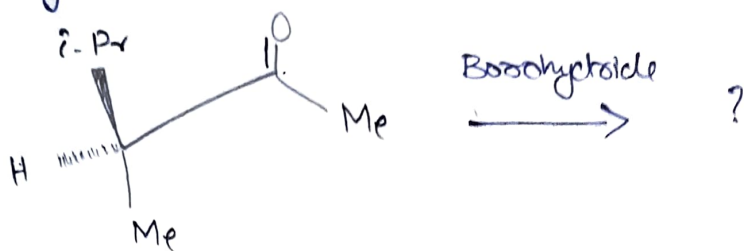
[D 34019, February 2013]

35. Write the structure of a Ru based, chiral phosphine containing chiral catalyst & suggest an application.

36. What are chiral reagents? Using typical examples illustrate their use in asymmetric synthesis

[D 33395, February 2013]

Identify the two alcohols in the borohydride reduction shown below. Use Cram rule to predict the major product.



[D-2035, December 2009]

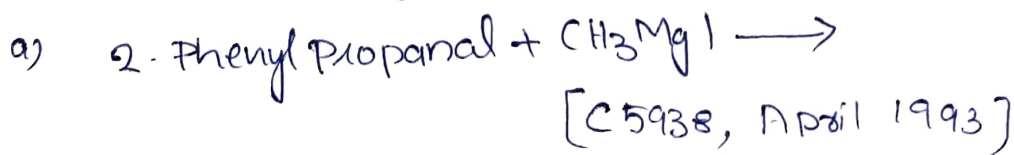
38. What is Cram rule? Explain its significance in stereo selective reactions.

[C-19159, April 2002]

39. Explain the use of chiral sulfoxide in asymmetric synthesis

[D-53044, January 2014]

40. Predict the major products of the following reactions



41. Apply Cram's rule & arrive at the stereochemistry of the major product obtained by the action of Phenylmagnesium bromide of 2-Phenylpropanal.

[C1639, May 1990]

Explain Cram's rule. With the help of Cram's rule predict the preferred diastereoisomer formed in the reduction of 3-phenyl 2-butanone by LiAlH_4

[C6045, April 1993]

3. Represent the conformations of n-butane by Newman projection. Draw an energy diagram to show the changes in potential energy as the molecule is rotated about C_2-C_3 bond.

May 1990

C 1515

1. Draw the stablest conformations of 1,2-dibromoethane and 1,2-dihydroxy ethane.
2. How many geometrically isomeric 1-methyldecalins are possible? Draw their conformations.
3. Draw the conformation of 1-chloropropane, using Newman projection. Draw an energy diagram to show the changes in potential energy as the molecule is rotated around the C_1-C_2 bond.

May 1989

C 23476

1. Draw the conformations of meso-stilbenedibromide using Newman projection. Draw an energy diagram to show the changes in potential energy as the molecule is rotated around the C-C single bond.
2. Draw the stablest conformations of the following compounds.
 - (i) meso-2,3-butanediol
 - (ii) cis-4-phenylcyclohexanol.