Seat No: _____ Enrollment No: _____

PARUL UNIVERSITY

FACULTY OF APPLIED SCIENCE

M.Sc.Winter2019-20 Examination

Semester: 4 **Date: 10/12/2019**
Subject Code: 11205252 **Time: 10:30am to 1:00pm**
Subject Name: Stereochemistry and Disconnection Approach **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1. A) Essay type(Each of 04 marks) **(08)**

(a) Explain asymmetric synthesisgiving one example.

(b) Explain internal compensation.

Q.1. B) Answer the following questions (Any two)

(a) Short note(Each of 02 marks) **(04)**

1. Define angular strain.
2. Define epimerization? Give one example of epimer.

(b) Explain in brief the different methods to achieve resolution. **(04)**

(c) Explain Curtin–Hammett principle with one example. **(04)**

Q.2. A) Answer the following questions.

(a) Short note (Each of 02 marks) **(04)**

1. What are axial and equatorial hydrogens?
2. Why chair conformation of cyclohexane is more stable than the boat form?

(b) Why propene prefers eclipsed condition? **(04)**

Q.2. B) Answer the following questions (Any two)

(a) Do as directed.(Each of 01 marks) **(03)**

1. Decalin has two fused rings made of

   (A) Cyclobutane and Cyclohexane (B) Two cyclobutane rings

   (C) Two cyclopentane rings (D) Two cyclohexane rings
2. Define conformationally rigid diastereomers.
3. Draw the structure of meso tartaric acid?

(b)Explain the difference between enantiomers and diastereomers with examples **(03)**

(c) Draw the structure of Progesterone and Testosterone. **(03)**

Q.3. A) Essay type (Each of 04 marks) **(08)**

(a) Write two positive and two negative synthons with their synthetic equivalents.

(b) Give one example of Functional Group Interconversion.

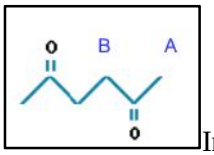
Q.3. B) Answer the following questions (Any two)

(a) Do as directed. **(04)**

1. [A] The meso form of an optical isomer is

   (a) Optically inactive (b) a diastereomer of active forms

   (c) Same as D,L- form (d) Both A and B

[B] 

In the given molecule, intramolecular Aldol reaction is possible by deprotonation at

(a) A site (b) B site (c) both A and B (d) reaction not possible

2. Define synthons and synthetic equivalents?

(b) Explain why formaldehyde cannot be used for Aldol condensation. **(04)**

(c).Write a note on Diels-Alder reaction and disconnection of the reaction product **(04)**

Q.4. A) Answer the following questions.

(a) Short note (Each of 02 marks) **(04)**

1. Perform a valid disconnection on phenyl acetic acid.
2. Explain regiospecific and regioselective reactions.

(b) Perform a disconnection on 3-hydroxy ester.. **(04)**

Q.4. B) Answer the following questions (Any two)

(a) Short note (Each of 01 marks) **(03)**

1. Disconnection approach is also known as

   (A) Retrosynthesis (B) Retroanalysis (C) Interconversion (D) Rearrangement

2. In cyclopentane ring, number of “endo” carbons are

   (A) 1 (B) 2 (C) 3 (D) 4

3. Draw a structure of simple decalin.

(b) Write the dehydration mechanism under acidic conditions in Aldol condensation. **(03)**

(c) What is an activating group? Give one example. **(03)**