

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.

M.Sc.(Chemistry) - END SEMESTER EXAMINATIONS APRIL - 2023
SEMESTER - I

22PCHCT1001 - Basic Principles of Organic Chemistry

Total Duration : 2 Hrs. 30 Mins.

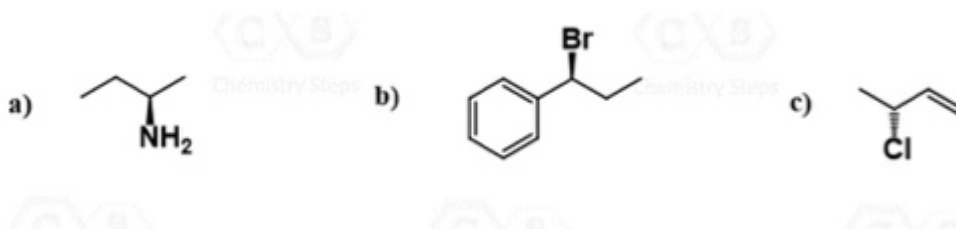
Total Marks : 60

Section B

Answer any **SIX** questions ($6 \times 5 = 30$ Marks)

1. Identify whether the following compounds are aromatic, non aromatic, antiaromatic or non aromatic Cyclopropenyl cation, cycloheptatriene Azulene, 18 annulene, cycloocta tetraene
2. Explain the term kinetic and thermodynamic control of the reaction with suitable examples.
3. Apply crams chelation model to explain the mechanism of the diastereoselective addition of aldehydes and ketones.
4. Illustrate Favorski rearrangement with suitable mechanism.
5. Illustrate with suitable example the use isotope labelling (tracer technique) in the determination of reaction mechanism.
6. Identify all the chiral centres in each molecule and determine the absolute configuration as R or S:

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7. Give a brief account on conformational analysis (including optical activity) of 1,2-, 1,3- and 1,4- disubstituted cyclohexenes.
8. Distinguish (i) Homotopic ligand (ii) Hetrotopic ligand (iii) Distereotopic ligand

Section C

I - Answer any **TWO** questions ($2 \times 10 = 20$ Marks)

9. Describe with suitable examples how Huckels/Craigs rule is used to ascertain the aromatic nature of organic compounds.

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10. Apply kinetic and non-kinetic methods to determine the mechanism of an organic reaction.
11. Justify the following statements
 - (a) cis-4-t-butyl cyclohexanol is more rapidly oxidised by chromic acid than its trans isomer.
 - (b) The saponification of trans-ethyl 4-t-butyl cyclohexane carboxylate 20 times faster than cis isomer.
12. Examine disubstituted cyclo propane and write the isomers which exhibit Geometrical and optical isomerism.

II - Compulsory question ($1 \times 10 = 10$ Marks)

13. Compare the mechanistic aspects of Wagner Meerwein, dienone-phenol rearrangement.
