



SARVAJANIK EDUCATION SOCIETY
Shree Ramkrishna Institute of Computer Education & Applied Sciences

SARVAJANIK UNIVERSITY

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Report of 3 Days Workshop: NMR Spectroscopy and Data Analysis

Department Name: Chemistry

Activity Name: 3 Days Workshop: NMR Spectroscopy and Data Analysis

Date: 20,21,22/08/2026

No. of Days: 03

Venue: Room number 305 (SRKI)

Resource person: Dr. D. I. Brahmbhatt

Aim/purpose: To provide knowledge of NMR spectroscopy, instrumentation, spectral interpretation, and data analysis. To develop skills in using NMR techniques for the identification and structural analysis of chemical compounds.

Details of the activity: The three-day workshop was attended by **134** participants from various departments, including Honors, Postgraduate, and research students. The resource person provided an in-depth explanation of NMR spectroscopy, covering its fundamental principles, instrumentation, spectral interpretation, and data analysis. Special emphasis was given to advanced 2D NMR techniques, including COSY and HETCOR, with relevant explanations and practical interpretation of spectra.

Participants: 134 (CH, MB, BT, ES Department Honors, PG and Research students)

Outcome: Participants gained a deeper understanding of NMR spectroscopy and spectral data analysis, **including advanced** 2D NMR techniques such as COSY and HETCOR. The workshop enhanced their ability to interpret NMR spectra and apply NMR techniques for structural elucidation and identification of chemical compounds.



Differentiation of stereoisomers by ^{13}C spectra

On the left, a chalkboard displays two chair conformations of 1,3-dichlorocyclohexane. The top structure is the *trans* isomer, with one chlorine atom in an axial position and the other in an equatorial position. Next to it, the handwritten text $1,1,1=3$ is visible. The bottom structure is the *cis* isomer, with both chlorine atoms in equatorial positions. Next to it, the handwritten text $2,2,2=$ is visible.

On the right, a ^{13}C NMR spectrum is shown. The x-axis is labeled "PPM (ppm)" with markers at 60 and 20. The spectrum features several peaks: a triplet at approximately 60 ppm, a multiplet between 20 and 40 ppm, and a sharp singlet at approximately 0 ppm labeled "TMS". Above the spectrum, chemical structures of cyclohexane are shown with labels "H" and "CH₃".