



SHREE H. N. SHUKLA GROUP OF COLLEGES

(AFFILIATED TO SAURASHTRA UNIVERSITY & GTU)

2-Vaishali nagar,
Near amrapali railway crossing,
Raiya road, Rajkot- 360 001.
Ph.No.-(0281) 2440478, 2472590

3-Vaishali nagar, Near
amrapali railway crossing,
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Ph.No.-(0281) 2224362

Behind marketing yard,
Near Lalpari lake, Between
Amargadh-Bhichri,
Rajkot- 360 002.
Ph.No. 90990 63150

M.Sc. Chemistry Semester IV (CBSE) C-401 Advanced spectroscopy techniques

Question bank

**Prepared by,
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Q. Give the answer of all question (Each questions has two marks)

- Q 1. Write down the principle of Raman spectroscopy.
- Q 2. Why TMS used as internal standard in ^1H NMR spectroscopy.
- Q 3. Explain Chemical ionization used in mass spectrometry.
- Q 4. What is rotational and vibration spectroscopy with example.
- Q 5. Discuss AB type system and proton splitting with proper example.
- Q 6. Discuss UV absorption shift with example.
- Q 7. Write down about solvent used in ^1H NMR spectroscopy.
- Q 8. Write any one factor affecting to the signal splitting in ^1H NMR spectroscopy.
- Q 9. Write note about finger print region.
- Q 10. Write down about source of light used in UV Visible spectroscopy.
- Q 11. Explain Photomultiplier tube used as detector.

Q. Give the answer of all question (Each question has five marks)

- Q 1. Explain ROSY, HMQC, NOESY, TOCSY.
- Q 2. Why TMS used as internal standard in ^1H NMR spectroscopy.
- Q 3. Explain fast atom bombardment ionization technique used in mass spectrometry.
- Q 4. Explain the types of bands observed in UV spectroscopy.



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- Q 5. Explain instrumentation of Raman spectrometer.
- Q 6. Explain Quardrupole used in mass spectrometry.
- Q 7. Explain types of peaks observed in mass spectrum.
- Q 8. What is mass analyzer? Explain TOF with diagram and discuss its merits and demerits?
- Q 9. Explain Detectors used in Infra red spectroscopy.

Q. Give the answer of all question (Each question has seven marks)

- Q 1. Explain different types of shifting occur in UV spectroscopy.
- Q 2. Explain different types of mass separator used in mass spectrometry.
- Q 3. Explain AB, AB₂ A₂B₂ types of signal types and splitting in ¹H NMR spectroscopy.
- Q 4. Give the signal types in ¹³C NMR.