



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,
Raiya road, Rajkot- 360 001.
Ph.No.-(0281) 2224362

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

M.Sc. Chemistry Internal/prelims exam

Semester IV C-401 Advanced spectroscopic techniques

Time: 1 hour

Date: --/--/----

Total marks: 30

Q-1 Give the answer of following questions (each question have 1 marks)

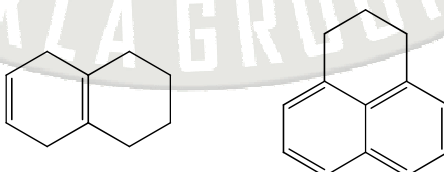
05 marks

1. Write down the principle of Raman spectroscopy.
2. Explain Chemical ionization used in mass spectrometry.
3. What is rotational and vibration spectroscopy with example.
4. Discuss UV absorption shift with example.
5. Explain Photomultiplier tube used as detector.

Q-2 Give the answer of any five out of following questions (each questions has 2 marks)

10 marks

1. Explain ROSY, HMQC, NOESY, TOCSY.
2. Why TMS used as internal standard in ^1H NMR spectroscopy.
3. Explain fast atom bombardment ionization technique used in mass spectrometry.
4. Explain the types of bands observed in UV spectroscopy.
5. Explain instrumentation of Raman spectrometer.
6. Explain Quardrupole used in mass spectrometry.
7. Explain types of peaks observed in mass spectrum.
8. What is mass analyzer? Explain TOF with diagram and discuss its merits and demerits?
9. Explain Detectors used in Infra red spectroscopy.
10. Predict the ^{13}C NMR signal for following compounds.





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

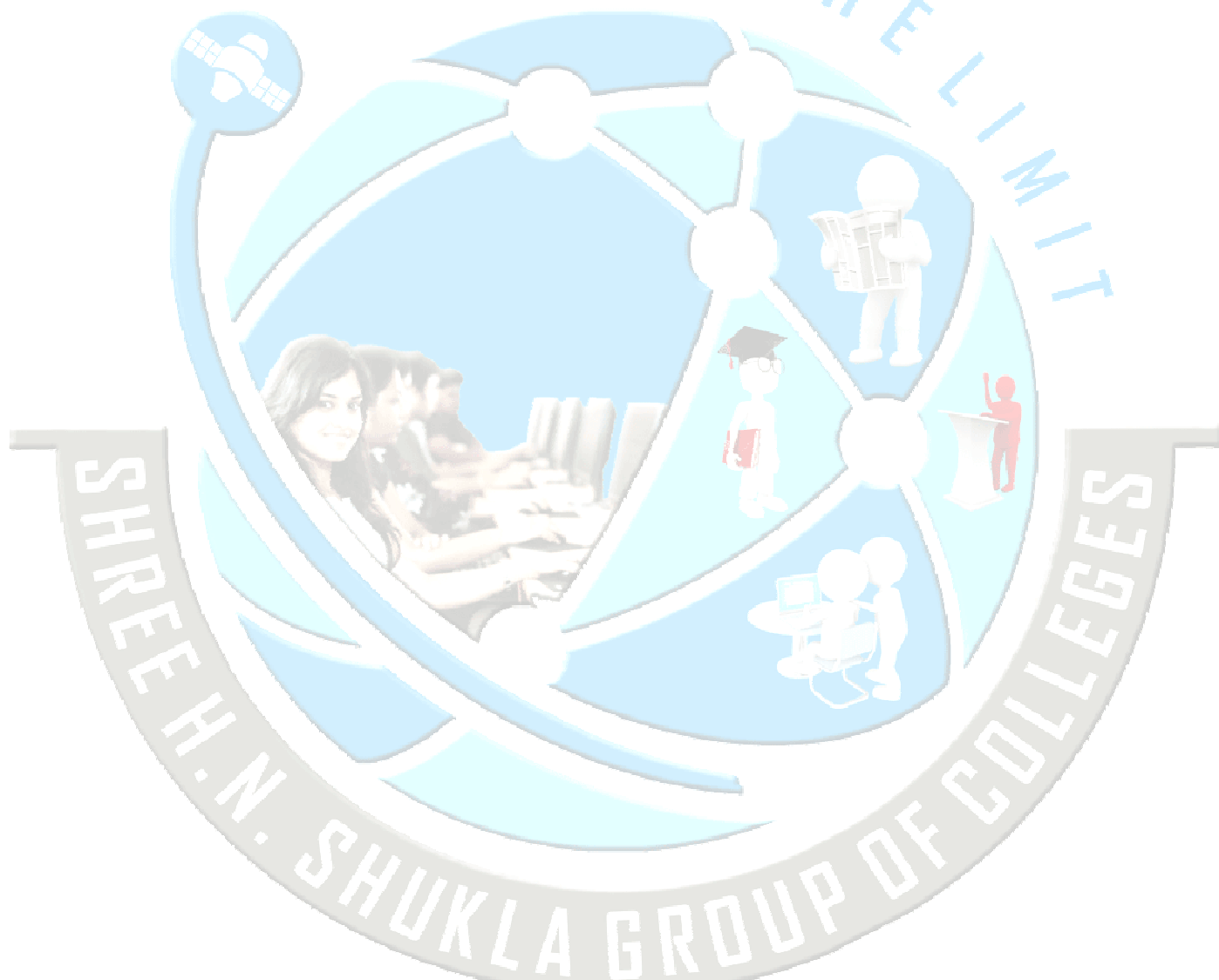
3-Vaishali nagar, Near
amrapali railway crossing,
Raiya road, Rajkot- 360 001.
Ph.No.-(0281) 2224362

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

Q-3 Give the answer of following questions (each questions has 5 marks)

15 marks

1. Discuss the UV absorption due to carbonyl compounds in details.
2. Discuss classical and quantum mechanical theory of raman effects.
3. Draw the ^1H NMR of AA'BB; system with suitable example and explain it briefly.



*****All the Best*****