

Enrollment No: _____

Exam Seat No: _____

C. U. SHAH UNIVERSITY

Summer Examination-2022

Subject Name: Analytical Chemistry-III

Subject Code: 4SC06ACH1

Branch: B.Sc. (Chemistry)

Semester: 6

Date: 07/05/2022

Time: 02:30 To 05:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

Q-1 Attempt the following questions: (14)

- a) What is spectroscopy? 01
- b) Write the full form of TMS. 01
- c) What do you mean by conjugation? 01
- d) What is the range of UV visible spectroscopy? 01
- e) Define diamagnetic & paramagnetic. 02
- f) What is spin-spin coupling? 01
- g) Write full form of NMR. 01
- h) What is the role of monochromator? 01
- i) Define enantiomers. 01
- j) What is chromophore? 01
- k) How many types of bending vibrations in IR spectroscopy? 01
- l) What is conjugation? 01
- m) What is symmetric stretching? 01

Attempt any four questions from Q-2 to Q-8**Q-2 Attempt all questions (14)**

- a) Discuss the instrumentation of NMR. 08
- b) Write a note on vibrational frequency. 06

Q-3 Attempt all questions (14)

- a) Explain the basic introduction & principle of Raman spectroscopy. 05
- b) Write a note on coupling constant. 07
- c) Explain the term auxochrome with example. 02

Q-4 Attempt all questions (14)

- a) Discuss the instrumentation of mass spectroscopy. 07
- b) Explain various transition taking place in UV Vis spectroscopy. 07



Q-5	Attempt all questions	(14)
a)	Write a short note on molecular vibration theory.	07
b)	Discuss the instrumentation of IR spectroscopy.	07
Q-6	Attempt all questions	(14)
a)	Write any three applications of UV Vis spectroscopy.	04
b)	Explain the wavelength and frequency shifts observed in UV Vis spectroscopy.	07
c)	Write a short note on solvent effect in UV Vis spectroscopy.	03
Q-7	Attempt all questions	(14)
a)	What do you mean by shielding protons? Discuss the chemical shift in details.	06
b)	Discuss the fragmentation modes in mass spectroscopy.	05
c)	Explain equivalent & non-equivalent protons with examples.	03
Q-8	Attempt all questions	(14)
b)	Explain the analysis of mass spectrum of given organic compound:	07
	i) Paraffin	
	ii) alcohol	
c)	Write a note on :	07
	i) Anisotropic effect	
	ii) Enantiomeric & diastereomeric protons.	

