

C.U.SHAH UNIVERSITY

Summer Examination-2019

Subject Name: Analytical Chemistry - III

Subject Code: 4SC06ACH1

Branch: B.Sc. (Chemistry)

Semester: 6

Date: 29/04/2019

Time: 10:30 To 01:30

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) Write full form of FTIR.	1
	b) Write range of FTIR.	1
	c) What is conjugation?	1
	d) Write full form of ESI-MS.	1
	e) What is electronic transition?	1
	f) Write the sources of FTIR.	1
	g) What is the role of recorder?	1
	h) Write the principle of FTIR.	1
	i) Write full form of NMR.	1
	j) Write the name of lamp used in UV-Vis Spectroscopy.	1
	k) What is the role of detector?	1
	l) Write the principle of NMR.	1
	m) What is the range of UV light?	1
	n) Write full form of TMS.	1

Attempt any four questions from Q-2 to Q-8

Q-2	Attempt all questions	(14)
	A. Discuss the instrumentation of FTIR.	07
	B. Discuss the instrumentation of NMR.	07
Q-3	Attempt all questions	(14)
	A. Write a note on vibrational frequencies.	05
	B. Discuss the blue shift and hyperchromic effect in UV-Vis Spectroscopy.	05
	C. Write the applications of NMR.	04
Q-4	Attempt all questions	(14)
	A. Write a note on cell sampling techniques in FTIR.	07
	B. Discuss the classification of mass spectroscopy.	07



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| Q-5 | Attempt all questions | (14) |
| | A. Write a note on applications of UV. | 05 |
| | B. What do you mean by shielding protons? Discuss the chemical shift in detail. | 05 |
| | C. Write a note on steric effect in UV visible spectroscopy. | 04 |
| Q-6 | Attempt all questions | (14) |
| | A. Write a note on coupling constant. | 05 |
| | B. Discuss the NMR Deuterium labeling. | 05 |
| | C. Discuss the fragmentation modes in mass spectroscopy. | 04 |
| Q-7 | Attempt all questions | (14) |
| | A. Write the applications of Raman spectroscopy. | 07 |
| | B. Discuss the σ - σ^* , n - σ^* electronic transitions. | 07 |
| Q-8 | Attempt all questions | (14) |
| | A. Discuss the instrumentation of mass spectroscopy. | 07 |
| | B. Write a note on | 07 |
| | 1. Anisotropic effect. | |
| | 2. Enantiomeric and diastereomeric protons. | |

