Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name: Analytical Chemistry - II

Subject Code: 4SC06CHC4 Branch: B.Sc. (Chemistry)

Semester: 6 Date: 04/05/2018 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) Define: Chromatography 01
b) Define: Stationary phase 01
c) Define: Coupling constant 01
d) Define: Mass analyzer 01
e) Define : pH 01
f) Define: Molecular ion peak in mass spectrometry 01
g) Define: Partition Chromatography 01
h) Give only types of Relaxation process in ^{1}H NMR spectroscopy. 01
i) What is called adsorption Chromatography? 01
j) What do you mean by base peak in Mass spectrometry? 01
k) Give one example of compound in which shielding takes place. 01
l) Draw the ^{1}H-NMR spectrum of 1,1-dibromoethane. 01
m) Give any two applications of potentiometry. 01
n) What do you mean by deshielding of photon? 01

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

Q-2 **Attempt all questions** **(14)**

a. Discuss on the Instrumentation of gas chromatography. 07
b. Explain the selection and characteristics of carrier gas. 07

Q-3 **Attempt all questions** **(14)**

a. Explain spin-spin coupling or splitting of signal and causes for splitting of signal. 07
b. Describe the continuous wave -NMR instrumentation briefly. 07

Q-4		**Attempt all questions**	**(14)**
	a.	Define shielding and Explain shielding and deshielding in 1H NMR spectroscopy.	07
	b.	Explain: Why TMS used as reference compound and also explain chemical shift in 1H NMR spectroscopy.	07
Q-5		**Attempt all questions**	**(14)**
	a.	Discuss the principle of NMR spectroscopy.	07
	b.	Explain number of signal, equivalent and non-equivalent protons, diastereomeric and enantiomeric protons.	07
Q-6		**Attempt all questions**	**(14)**
	a.	Discuss the principle of mass spectrometry.	07
	b.	Explain Instrumentation of Mass spectrometry.	07
Q-7		**Attempt all questions**	**(14)**
	a.	Explain the electron ionization and chemical ionization in mass spectrometry.	07
	b.	Discuss Standard calomel electrode with its limitations and applications.	07
Q-8		**Attempt all questions**	**(14)**
	a.	Explain the potentiometric redox titration of $FeSO_4 \rightarrow (CeSO_4)_2$.	07
	b.	Explain argentometric titration of Cl^- , Br^- and I^- mixture by $AgNO_3$.	07