Enrollment No: _____   Exam Seat No: _____

C. U. SHAH UNIVERSITY
Summer Examination-2019

Subject Name: Analytical Chemistry-I
Subject Code: 5SC01ACH1   **Branch: M.Sc. (Chemistry)**
Semester: 1   Date: 19/ 03 /2019   Time: 02:30 To 05:30   Marks: 70

Instructions:
(1) Use of Programmable calculator and 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.

SECTION – I

Q-1	**Attempt the Following questions**	**(07)**
a.	What is called analytical chemistry?	**01**
b.	What do you mean by qualitative analysis?	**01**
c.	Define the term calibration	**01**
d.	Define food analysis	**01**
e.	Give the name of any three methods for determination of fat.	**01**
f.	Define the term spectrum	**01**
g.	What do you mean by wavelength? Give symbol and units of wavelength.	**01**

Q-2	**Attempt all questions**	**(14)**
a)	Discuss single and double spectrophotometers.	**07**
b)	Write a note on filter, prism and grating monochromators.	**07**

OR

Q-2	**Attempt all questions**	**(14)**
a)	Explain the calibration of IR spectrophotometer.	**07**
b)	Write a note on various analytical techniques.	**07**

Q-3	**Attempt all questions**	**(14)**
a)	Discuss the chemical method for low moisture food or Karl-Fischer methods for analysis of moisture from food sample.	**05**
b)	Explain the analysis of phosphate from food sample.	**05**
c)	Write a note on the analysis of sodium from food sample.	**04**

OR

Q-3	**Attempt all questions**	
a)	Discuss the dry ashing method.	**05**

b)	Explain the chemical methods for the analysis of fiber from food sample.	**05**
c)	Explain Kjeldahl method for analysis of nitrogen from food sample.	**04**

SECTION – II

Q-4		**Attempt the Following questions**	**(07)**
	a.	What is called sampling?	**01**
	b.	Define the term standardization	**01**
	c.	Define normality and give equation for finding molarity.	**01**
	d.	How many grams of $K_2Cr_2O_7$ and $KMnO_4$ are required to prepare 1.0 M, 1.0-liter solution?	**01**
	e.	What is called excited singlet and excited doublet state?	**01**
	f.	Give the temperature range in kelvin for Air-Acetylene flames.	**01**
	g.	What do you mean by nebulization?	**01**
Q-5		**Attempt all questions**	**(14)**
	a)	Give the type of errors and methods for minimization of errors.	**05**
	b)	Explain the instrumentation of phosphorescence spectroscopy.	**05**
	c)	Explain the common ion effect.	**04**

<div align="center">OR</div>

Q-5		**Attempt all questions**	
	a)	Explain the Applications, Advantages and Disadvantages of atomic absorption spectroscopy.	**07**
	b)	Write a note on Jablonski diagram in detail.	**07**
Q-6		**Attempt all questions**	**(14)**
	a)	Explain the instrumentation of fluorimetry.	**07**
	b)	Give the applications, advantages and disadvantages of nephelometry and turbidimetry.	**07**

<div align="center">OR</div>

Q-6		**Attempt all Questions**	
	a)	Write a note on law of mass action.	**05**
	b)	Explain the instrumentation of nephelometry.	**05**
	c)	Write a note on photomultiplier tube.	**04**