# C. U. SHAH UNIVERSITY Winter Examination-2018

## Subject Name : Analytical Chemistry-I

Subject Code : 58	C01ACH1	Branch: M.Sc. (Chemistry)				
Semester : 1	Date : 03 / 12 /2018	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.

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		SECTION – I	
Q-1		Attempt the Following questions	(07)
	a.	Define analytical chemistry	01
	b.	What do you mean by quantitative analysis?	01
	c.	What is calibration?	01
	d.	Define food analysis	01
	e.	Give the name of any five spectroscopic techniques.	01
	f.	What do you mean by spectrum?	01
	g.	Define wavelength and frequency	01
Q-2		Attempt all questions	(14)
	a)	Write a note on spectrophotometer.	07
	b)	Discuss the different wavelength selecting devices.	07
		OR	
Q-2		Attempt all questions	(14)
	a)	Explain the calibration of UV-Visible spectrophotometer.	07
	b)	Write a note on classical and instrumental analytical techniques.	07
Q-3		Attempt all questions	(14)
	a)	Explain the Karl-fischer methods for analysis of moisture from food sample.	05
	<b>b</b> )	Discuss the chemical methods for the analysis of fiber from food sample.	05
	<b>c</b> )	Write a note on the analysis of sodium from food sample.	04
		OR	
		Attempt all questions	
Q-3	a)	Explain discontinues solvent extraction method for the analysis of fat.	05
	b)	Discuss the method for phosphate analysis from food sample.	05
	<b>c</b> )	Explain Kjeldahl method for analysis of nitrogen from food sample.	04



## **SECTION – II** Attempt the Following questions Define the term sampling What do you mean by standardization? Define molarity and give equation for finding molarity.

- **d.** How many grams of  $K_2Cr_2O_7$  and  $KMnO_4$  are required to prepare 1.0 N 1.0 liter 01 solution? Which analytical technique is used for serum and body fluids analysis? 01 e.
- Give the temperature range in kelvin for air-Acetylene and air-Nitrous oxide flames. 01 f.
- What do you mean by nebulization? g.

Q-5		Attempt all questions	(14)
	a)	Give the type of errors and methods for minimization of errors.	05
	<b>b</b> )	Explain the solubility product and common ion effect.	05
	<b>c</b> )	Explain the law of mass action.	04

Explain the law of mass action. c)

#### Q-5 Attempt all questions

Discuss the instrumentation of atomic absorption spectroscopy. 07 a) **b**) Explain the Jablonski diagram in detail. 07

OR

Q-6		Attempt all questions									(14)
	a)	Explain the instrumentation of flamephotometry.							07		
	<b>b</b> )	Give	the	applications,	advantages	and	disadvantages	of	nephelometry	and	07
		turbid	imetı	ry.							

## OR

	Attempt all Questions	
a)	Explain the instrumentation of phosphorescence spectroscopy.	05
<b>b</b> )	Explain the principle and instrumentation of nephelometry.	05
<b>c</b> )	Write a note on photomultiplier tube.	04



### (07)

01

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01

01

Q-4

Q-6

a.

b.

c.