

C.U.SHAH UNIVERSITY

Winter Examination-2015

Subject Name : Instrumental Methods of Analysis - I

Subject Code : 4LS03IMA1/4SC03IMA1

Branch :B.Sc (Life Science)

Semester :3 Date :5/12/2015 Time :2:30 To 5:30 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.
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Q-1	Attempt the following questions:	(14)
	a) Write down Beer- Lambert law	1
	b) The absorbance of 6×10^{-4} M solution is 0.60, the path length of the cuvette is 1 cm. calculate the molar absorption coefficient	1
	c) Define Molar absorption coefficient	1
	d) What is absorption spectroscopy?	1
	e) What is Principle of UV-Vis spectroscopy?	1
	f) What is difference between Raman spectroscopy and IR spectroscopy	1
	g) What are ranges of IR radiations?	1
	h) What are near UV and far UV radiations?	1
	i) Write down the basic principle of NMR.	1
	j) Draw schematic diagram of UV visible spectroscopy	1
	k) What is photometry?	1
	l) Define absorbance.	1
	m) Define transmittance	1
	n) What is basic difference between FAS and AAS ?	1
Q-2	Attempt all questions	(14)
A	Explain Monochromator and filter in UV Visible Spectroscopy	7
B	Explain Double Beam Splitter working with diagram	7
Q-3	Attempt all questions	(14)
A	Explain electromagnetic radiation with absorption and emission of light.	7
B	Explain applications of UV Visible spectroscopy	7



Q-4	Attempt all questions	(14)
A	Explain basic principles of FAS and AAS	7
B	Explain instrumentation of Flame atomic spectroscopy(FAS)	7
Q-5	Attempt all questions	(14)
A	Explain Infrared rays in detail with basic principle behind IR spectroscopy	7
B	Explain AAS instrumentation in detail.	7
Q-6	Attempt all questions	(14)
A	Explain theory of NMR and principle of NMR spectroscopy in detail	7
B	Explain Sample preparation and detection in IR spectroscopy	7
Q-7	Attempt all questions	(14)
A	Explain Raman spectroscopy in detail	7
B	Explain FTIR in detail	7
Q-8	Attempt all questions	(14)
A	Write down applications of AAS	7
B	Write down application of IR spectroscopy	7

