

C.U.SHAH UNIVERSITY

Summer Examination-2019

Subject Name : Pharmaceutical Analysis-III

Subject Code : 4PS08PHA1

Branch: B.Pharm

Semester : 8

Date : 22/04/2019

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.
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Q-1 Attempt the following questions: (14)

- a) Which of the following is a destructive analytical technique? 1
- i- NMR
 - ii- Mass spectrometry
 - iii- HPLC
 - iv- Light scattering
- b) Functional group of IR region is between 1
- i- 4000 cm^{-1} to 900 cm^{-1}
 - ii- 1400 cm^{-1} to 900 cm^{-1}
 - iii- 4000 cm^{-1} to 600 cm^{-1}
 - iv- 4000 cm^{-1} to 1400 cm^{-1}
- c) Which of the instrument doesn't exist? 1
- i- FT-IR
 - ii- FT-MASS
 - iii- FT-NMR
 - iv- FT-UV
- d) Sample holder in case of IR is made up of 1
- i- NaCl
 - ii- Glass
 - iii- Quartz
 - iv- Silver
- e) Region of UV below 200 nm is known as 1
- i- Far IR
 - ii- Vacuum UV
 - iii- Microwave
 - iv- Radio wave
- f) Reference standard used in NMR is 1
- i- CCl_4
 - ii- CS_2
 - iii- TMS
 - iv- NaCl



- g) HPLC stands for 1
 i- High performance liquid chromatography
 ii- High pressure liquid chromatography
 iii- Both i& ii
 iv- None of the above
- h) Beer's and Lambert's law is related to 1
 i- UV
 ii- NMR
 iii- Mass
 iv- Titration
- i) Which of the following is not an instrumental part of HPLC? 1
 i- Pump
 ii- Gradient controller
 iii- Solvent conditioning column
 iv- Accelerating chamber
- j) Hollow Cathode Lamp is useful as light source in 1
 i- IR
 ii- NMR
 iii- Atomic spectroscopy
 iv- Fluorescence
- k) ICH guideline for analytical method validation is 1
 i- Q1
 ii- Q9
 iii- Q10
 iv- Q2 (R1)
- l) Which of the following is not used as detector in Gas chromatography? 1
 i- Bolometer
 ii- Electron capture
 iii- Flame ionization
 iv- Thermal conductivity
- m) An example of emission spectroscopy is 1
 i- UV
 ii- Visible
 iii- Fluorescence
 iv- NMR
- n) Group which is responsible for absorption of color of a compound is 1
 i- Auxochrome
 ii- Chromophore
 iii- Both i& ii
 iv- none

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

- Q-2 Attempt all questions (14)**
- (a) Write brief note on: Beer Lambert's Law. Discuss the deviations of Beer Lambert's law. 05
- (b) Explain Bathochromic shift and Hypsochromic shift. What is the significance of Woodward Fieser Rule? Explain with example. 05
- (c) Explain following terms: Wavelength, frequency, line spectra, wave number. 04



Q-3	Attempt all questions	(14)
	(a) What is Fluorescence and Phosphorescence? Explain Jablonski Diagram.	07
	(b) Write note on FT-IR spectroscopy.	07
Q-4	Attempt all questions	(14)
	(a) Discuss theory of IR spectroscopy? Explain stretching and bending vibrations in brief.	07
	(b) What is Atomic spectroscopy? Discuss interferences observed in atomic absorption spectroscopy.	07
Q-5	Attempt all questions	(14)
	(a) What are different ionization techniques used in Mass spectrometry? Explain any one in detail.	05
	(b) Define chemical shift. Explain in brief factors affecting chemical shift.	05
	(c) Explain: Base peak, Mc lafferty rearrangement	04
Q-6	Attempt all questions	(14)
	(a) Discuss various parameters used for Analytical Method Validation as per ICH guidelines.	07
	(b) Write a note on “ELISA.”	07
Q-7	Attempt all questions	(14)
	(a) Explain various detectors used in HPLC.	05
	(b) Describe the different pumps used in HPLC.	05
	(c) Explain Principle and applications of HPLC.	04
Q-8	Attempt all questions	(14)
	(a) Write a short note on “The Detectors used in GC.”	05
	(b) Discuss the principle and applications of Gas Chromatography.	05
	(c) Explain briefly the following terms GC-MS, LC-MS	04

