POKHARA UNIVERSITY

Year : 2014
Full Marks: 100
Pass Marks: 45
Time : 3 hrs.

el: Bachelor Semester: Spring
gramme: B.Pharm.
urse: Pharmaceutical Chemistry IV(Analytical Chemistry)

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks

Attempt all the questions:

8	i) How do you define coherent radiation and diffraction of radiation? Give a brief account of each.	5
	ii) Explain briefly photoelectric effect of light with necessary diagrams.	5
	c) Define and classify the errors encountered in analytical chemistry.	5
7	a) Define and classify calibration. What is the operational procedure of external standard calibration method?	7
	b) What is the principle of atomic absorption spectroscopy? Discuss the types of interferences encountered in atomic absorption spectroscopy.	4+4
	a) Describe briefly the principle and instrumentation of direct current Plasma (DCP) emission spectroscopy.	5
	b) Describe the interferences observed in plasma sources.	5
	c) What is the principle of flame photometry? Draw a neat and labelled diagram of a flame photometer.	5
	a) Why does a chiral molecule rotate a plane polarised light? Define Polarimeter and draw its labelled diagram.	5
	b) If a 5.0% w/v solution of chloramphenicol in ethanol filled in 10cm tube shows optical rotation of 0.93^0, what would be specific optical rotation?	5
	c) Describe potentiometric method to determine the pH of a solution.	5
	a) Illustrate how a standard hydrogen electrode can be used as a reference electrode to determine the potential of Zinc electrode.	5
	ii) Discuss the applications of voltametry.	
	c) Define polarography and discuss its principle.	5
	a) Write down the principle of conductometric titrations. Discuss the nature of titration curves obtained for the following titrations.	2+3
	i. A mixture of HCl and CH_3COOH with sodium hydroxide	7
	ii. Weak acid with Weak base	
	b) Define conductometry. How you measure the conductance of solutions by using Wheatstone bridge? Explain.	1+7
	Write short notes on **any two:**	
	a) Transparent sample holder.	2×5
	b) Glass electrodes	
	c) Photoelectric effect	

POKHARA UNIVERSITY

Semester – Fall

Year : 2015
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

Level: Bachelor
Programme: B. Pharm
Course: Pharmaceutical Chemistry IV (Analytical Chemistry)

Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.
Attempt all the questions.

a.	What is calibration? Explain the approaches on the calibration of instrumental methods.	8
b.	Differentiate quantitative and qualitative analysis with examples. Define selectivity of an analytical method.	7
a.	Define electromagnetic spectrum. Show your acutance about superposition of waves.	5
b.	Define optical instruments. Draw the flow chart of general designs of optical instruments	5
c.	Define nebulization & atomization. Show your opinion about flame atomization technique.	5
a.	How the different types of samples are applied and handled in arc and spark source emission spectrometry? Explain in brief.	5
b.	Define plasma. Explain in brief about the Inductively coupled plasma source.	5
c.	What do you know about electrode less discharge lamps? Draw a clear picture of cutway of electrode less discharge lamp.	5
a.	Give an account of flame structure and atomization procedure.	5
b.	What is polarimetry? Define and give an account of relationship between ORD, CD and cotton effect.	5
c.	Calculate Sp. optical rotation of 2.0g/ml solution of a substance with optical rotation of 10.3 filled in a 10 cm tube.	5
a.	What are reference electrodes? Name the four types of metallic electrodes and explain any one of them.	5
b.	Define potentiometric titration. How many types of potentiometric titration do you know? Discuss any one of them.	5

c) Draw a typical voltammogram and write about the relation between limiting current and concentration.

7. Write short notes on **(any two):**
   a) Polarogram
   b) Flame
   c) Electromagnetic spectrum

POKHARA UNIVERSITY

Level: Bachelor
Program: B.Pharm.
Course: Pharmaceutical Chemistry VII

Semester: Spring

Year : 2016
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

a) How is quality of pharmaceuticals important and different from other products? Explain. 7

b) What are the basic principles involved in HPLC technique? Why is HPLC technique a choice in pharmaceutical analysis? 8

a) What are complexometric titrations? Describe an example of it, involving EDTA. 7

b) What is meant by 'The Leveling effect'? Discuss the different types of solvent used in non-aqueous titrations. 8

a) Discuss about extraction, purification and assay techniques of alkaloids. 7

b) What is diazotization? How this phenomenon helps in the quality control of medicinal compounds? Explain with examples. 8

a) You are a production pharmacist. You have to manage the pharmaceutical plant visit by Industry Minister of the country. What are your quality control concerns? Explain. 7

b) What is self-audit? Describe the importance of self-audit in pharmaceutical industries. 8

a) What is biological assay? How does this technique help in the development and quality control of drug substances? 7

b) Why is training important? If you have to prepare a cleaning staff training manual, What are your major considerations? 8

a) What is process validation? Discuss the steps involved in the process validation work. 5

b) How does cleaning validation work minimize the incidents of cross-contamination and contamination in pharmaceutical products processing units ? 5

c) Who is member of ISO from Nepal? Write about NS mark. 5

Write short notes on **any two.** 2×5

a) Xray diffraction in quality control

b) Change control

c) ICH

POKHARA UNIVERSITY

Level: Bachelor Semester: Fall Year : 2017
Program: B.Pharm. Full Marks: 100
Course: Pharmaceutical Chemistry IV(Analytical Chemistry) Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

) What are the factors to be considered during selection of analytical methods? Write in brief. 5
) What are the three most common calibration methods? Describe them 5
) What is the principal of superposition of waves? What are constructive and destructive interferences? 5
) What is dispersion? Draw a typical dispersion curve and describe briefly. 5
) Sketch a figure showing the various regions of a flame. 5
) Write about the sample preparation in atomic absorption analytical techniques. 5

Write notes on :

) Inductively coupled plasma 5
) Direct current plasma 5
) Principles of Flame Photometry 5
) What are the various interferences in flame photometry? 5
) Describe the principle of Polarimetry. 5
) Write about cotton effect. What are the applications of CD and ORD curves? 5
) What are the different types of conductometric titrations? Show the various nature of the curves of conductometric titrations.
) What are microelectrodes? Write briefly about the different types of microelectrodes. 5
) Draw a typical voltammogram and write about the relationship between limiting current and concentration 5
) Write about the advantages and disadvantages of the glass electrode. 5
) Define standard hydrogen electrod and standard electrode potential. 5
) What is Ilkovic equation and what are their different parameters? 5

Write short notes on **any two:** 2×5

) Atomic fluorescence spectroscopy
) Application of Analytical Chemistry
) Requirments for conductance measurment

POKHARA UNIVERSITY

Semester: Fall

Level: Bachelor
Programme: B. Pharm.
Course: Pharmaceutical Chemistry IV
(Analytical Chemistry)

Year : 2018
Full Marks: 100
Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

a) Define analytical chemistry. Classify analytical methods and describe them briefly. 5
b) What are the three most common calibration methods? Describe them briefly. 5
c) What is the principal of superposition of waves? What are constructive and destructive interferences? 5

a) What are the different types of sources used in atomic absorption spectroscopy? Explain 5
b) Explain the sample preparation and handling in atomic absorption analytical technique. 5
c) Discuss the applications of atomic arc and spark emission spectroscopy 5

) Describe briefly inductively coupled plasma with diagram. 5
) Draw a neat and labelled diagram of polarimeter. 5
) Discuss the principle of Flame photometry. 5
) What are circular birefringence. ORD curve, cotton effect and CD? Describe briefly. 5
) What is Standard hydrogen electrode? How is it used for the measurement of standard electrode potential? 5
) Explain the errors affecting PH measurements with a glass electrodes. 5
) Explain emission of radiation. Explain in brief with different types of emission spectra. 5
) What are the characteristics of reference electrodes? What are the types of reference electrodes? Explain about them. 5
) Define: i) Ohm's law ii) Molecular conductance
iii) Specific resistance iv) Equivalent conductance 5
) What are the different types of conductometric titrations? Show the various natures of the curves of conductometric titrations. 5
) What are microelectrodes? Write briefly about the different types of microelectrodes.

7

Write short notes on **any two**:

a) Describe the basic principle of X-ray analysis.

b) Spin –Spin Coupling

c) Chemical Ionization

d) Role of solvents on UV spectrum.

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