Code: BP102T

R19

B.Pharm I Year I Semester (R19) Supplementary Examinations February 2023

PHARMACEUTICAL ANALYSIS

(For 2019, 2020 & 2021 admitted batches only)

Time: 3 hours

Max. Marks: 75

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Write the difference between primary and secondary standards with suitable examples. 2M

(b) How will you prepare 500 ml of 0.1M Hydrochloric acid solution? 2M

(c) Write the principle of acid base indicators. 2M

(d) Write the principle of non aqueous titration. 2M

(e) Give the principle of diazotization titrations with suitable examples. 2M

(f) What is meant by argentometric titrations? Give one example? 2M

(g) Write the difference between Iodimetry and Iodometry. 2M

(h) Write the difference between Cerimetry and Dichrometry. 2M

(i) Give the principle of conductometry. 2M

(j) Give the principle of polarography. 2M

PART – B

(Answer any two questions: 02 X 10 = 20 Marks)

2 Enumerate different techniques of pharmaceutical analysis with their principles and examples. 10M

3 Write the principle and steps involved in gravimetric methods of analysis. 10M

4 Give the significance of ilkovic equation. And write about the construction and working of dropping mercury electrode. 10M

PART – C

(Answer any seven questions: 07 X 05 = 35 Marks)

5 How will you prepare and standardise 0.1M potassium permanganate solution? 5M

6 Discuss different methods of minimizing errors in pharmaceutical analysis. 5M

7 Write about the solvents used in non-aqueous titration with suitable examples. 5M

8 Write the assay of Ephedrine HCl. 5M

9 Differentiate between co-precipitation and post precipitation techniques. 5M

10 Write a note on masking and demasking reagents with suitable examples. 5M

11 How will you prepare and standardize 250 ml of 0.5M sodium hydroxide solution? 5M

12 Write a note on conductometric titrations with suitable examples. 5M

13 Discuss the construction and working of: 5M
(i) Standard Hydrogen Electrode.
(ii) Glass Electrode.

*****

Code: BP102T

R19

B.Pharm I Year I Semester (R19) Supplementary Examinations September 2022

PHARMACEUTICAL ANALYSIS

(For 2019, 2020 & 2021 admitted batches only)

Time: 3 hours

Max. Marks: 75

PART – A

(Compulsory Question)

*****

1		Answer the following: (10 X 02 = 20 Marks)	
	(a)	Define polarography.	2M
	(b)	What is Nernst equation?	2M
	(c)	Define equivalence conductivity.	2M
	(d)	Define oxidation and give some examples of oxidizing and reducing agents.	2M
	(e)	Define supersaturation.	2M
	(f)	What do you mean by chelation?	2M
	(g)	Define precipitation titration.	2M
	(h)	What are protophilic solvents?	2M
	(i)	Explain in briefly about Bronsted-Lowry concept.	2M
	(j)	What do you understand by accuracy and precision?	2M

PART – B

(Answer any two questions: 02 X 10 = 20 Marks)

2	(a)	Discuss the preparation and standardization of sulphuric acid.	5M
	(b)	Explain theory involved in acid base titrations.	5M
3	(a)	Explain basic principle and methods involved in diazotization titration.	5M
	(b)	Briefly discuss conductometric titrations and its applications.	5M
4	(a)	Give a note on concepts of oxidation and reduction.	5M
	(b)	Explain methods to determine end point of potentiometric titration and applications.	5M

PART – C

(Answer any seven questions: 07 X 05 = 35 Marks)

5	(a)	Explain the methods of expressing concentration.	2.5M
	(b)	Explain about sources of errors.	2.5M
6	(a)	Illustrate about preparation and standardization of hydrochloric acid.	2.5M
	(b)	Explain procedure involved in estimation of Ephedrine HCl.	2.5M
7	(a)	Give a detailed note on neutralization curves.	2.5M
	(b)	Explain about Fajan's method.	2.5M
8	(a)	Briefly explain the procedure involved in estimation of magnesium sulphate.	2.5M
	(b)	Outline the procedure for estimation of barium sulphate.	2.5M

Contd. in page 2

9	(a)	Define diazotization and give some applications of diazotization titration.	2.5M
	(b)	Write the principle and procedure involved in redox titration.	2.5M
10	(a)	Explain in detail about cerimetry.	2.5M
	(b)	Draw the diagram conductometer and applications of conductometry.	2.5M
11	(a)	Explain construction and working of silver chloride electrode.	2.5M
	(b)	Write the principle of polarography and a note on Ilkovic equation.	2.5M
12	(a)	Explain the concept & discuss the different types of solvents used in non-aqueous titrations.	2.5M
	(b)	Illustrate procedure involved in titration of potassium iodide.	2.5M
13	(a)	Explain construction and working dropping mercury electrode.	2.5M
	(b)	Explain about sources of impurities in medicinal agents.	2.5M

*****

Code: BP102T

R19

B.Pharm I Year I Semester (R19) Regular Examinations July 2022

PHARMACEUTICAL ANALYSIS

(For 2021 admitted batches only)

Time: 3 hours | Max. Marks: 75

PART – A

(Compulsory Question)

*****

1		Answer the following: (10 X 02 = 20 Marks)	
	(a)	Classify analytical methods (instrumental and non-instrumental).	2M
	(b)	Define Lewis acid and base with example.	2M
	(c)	Define adsorption indicator with example.	2M
	(d)	Define specific conductance.	2M
	(e)	Write a brief note on primary standards.	2M
	(f)	Describe the principle involved in diazotization titrations.	2M
	(g)	Give the limitations of argentometric titrations.	2M
	(h)	Define migration current.	2M
	(i)	What do you mean by e.m.f.	2M
	(j)	Outline the examples of oxidizing and reducing agents.	2M

PART – B

(Answer any two questions: 02 X 10 = 20 Marks)

2	(a)	Explain different types of errors with examples.	5M
	(b)	Classify acid-base titrations with examples. Write in brief on neutralizing curves.	5M
3	(a)	Explain in detail about Volhard's method and Mohr's method in precipitation titrations.	5M
	(b)	Discuss in detail about potentiometric titrations, its principle and instrumentation.	5M
4	(a)	Explain theory of redox titrations.	5M
	(b)	What do you mean by coprecipitation and explain different types of coprecipitation?	5M

PART – C

(Answer any seven questions: 07 X 05 = 35 Marks)

5		Explain in detail about:	5M
	(a)	Preparation and standardization of sodium hydroxide.	
	(b)	Sources of impurities in medicinal agents.	
6		Give a note on:	5M
	(a)	Theories of acid base titrations.	
	(b)	Different types of solvents in non-aqueous titration.	
7		Briefly explain about:	5M
	(a)	The procedure involved in estimation of sodium chloride.	
	(b)	The procedure involved in estimation of calcium gluconate by complexometric titration.	

Contd. in page 2

8		Write short notes on:	5M
	(a)	Ostwald's ripening and give its significance in gravimetric analysis.	
	(b)	Principle and procedure involved in iodometry and its applications.	
9		Briefly discuss about:	5M
	(a)	The concept of oxidation and reduction.	
	(b)	The principle and procedure involved in conductometric titration.	
10		Describe in detail about:	5M
	(a)	Electrodes used in potentiometry.	
	(b)	Principle and procedure involve in polarography.	
11		Write a short note on:	5M
	(a)	The methods to determine end point of potentiometric titration and applications.	
	(b)	Titration with potassium iodate.	
12		Add a note on:	5M
	(a)	Masking and demasking reagents used in complexometric titrations.	
	(b)	Preparation and standardization of potassium permanganate.	
13		Write a detailed note on:	5M
	(a)	The methods of minimizing errors.	
	(b)	Different techniques of analysis.	

*****

Code: BP102T

R19

B.Pharm I Year I Semester (R19) Supplementary Examinations March 2021

PHARMACEUTICAL ANALYSIS

Time: 3 hours Max. Marks: 75

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) List out the examples for the primary & secondary standards.
(b) List out the different techniques of analysis.
(c) Write the principle of acidimetry.
(d) Classify acid base titrations.
(e) Write a note on Volhard's method.
(f) Write a note on masking agents.
(g) Write the examples for iodometry.
(h) Write the principle of redox titration.
(i) Draw the polarographic wave with the indications.
(j) Define conductance & resistance.

PART – B

(Answer any two questions: 02 X 10 = 20 Marks)

2 (a) Enumerate the sources of impurities in medicinal agents.
(b) Write a note on neutralization curves.

3 (a) Write a detailed note on modified Volhard's & Mohr's method.
(b) Write the principle & methods & applications of diazotization titrations.

4 (a) Write the principle & applications of cerimetry.
(b) Describe in detail about various conductometric titrations.

PART – C

(Answer any seven questions: 07 X 05 = 35 Marks)

5 (a) Describe the terms limiting current & residual current.
(b) Write the advantages of dropping mercury electrode.

6 (a) Write the principle involved in limit test for chlorides.
(b) Write the principle involved in limit test for iron.

7 (a) Write the principle involved in iodometry.
(b) Explain the concept of oxidation & reduction.

8 (a) Explain the construction of glass electrode.
(b) Explain the construction of calomel electrode.

Contd. in page 2

9 (a) Write a note on apparatus used in conductometric titration.
(b) Write a note on metal electrodes.

10 (a) Write the principle involved in estimation of magnesium sulphate.
(b) Write the principle involved in estimation of Ephedrine HCl.

11 (a) Write the principle involved in estimation of barium sulphate.
(b) Write a note on Indian pharmacopoeia.

12 (a) Write methods of minimizing errors.
(b) Write the principle involved in non-aqueous titrations.

13 (a) Write a note on co-precipitation.
(b) Write the construction of silver chloride electrode.

*****

Code: BP102T

R19

B.Pharm I Year I Semester (R19) Supplementary Examinations April/May 2022

PHARMACEUTICAL ANALYSIS

(For 2019 & 2020 admitted batches only)

Time: 3 hours

Max. Marks: 75

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Define the terms molality and mole fraction.
(b) Why sodium hydroxide is secondary standard?
(c) Explain the acid base theory behind non-aqueous titrations.
(d) Name the primary standard for sodium hydroxide, hydrochloric acid, perchloric acid, and sulphuric acid.
(e) Why drying is an important step in gravimetry?
(f) Name any four drugs assayed by diazotization titration.
(g) Define the term reduction with an example.
(h) What is redox potential? Write its use.
(i) Name the indicator and reference electrodes for acid base and redox titrations.
(j) What is cell constant how it is determined?

PART – B

(Answer any two questions: 02 X 10 = 20 Marks)

2 (a) Explain the sources of impurities in the active pharmaceutical ingredients.
(b) Classify primary standards with at least two examples for each class.

3 (a) Explain the resonance theory to explain the behaviour of acid base indicators.
(b) Explain the preparation and standardization of 500 ml of 0.1M perchloric acid.

4 (a) Explain the steps in gravimetry in brief.
(b) List the ideal requirements and mechanism of action of metal ion indicators.

PART – C

(Answer any seven questions: 07 X 05 = 35 Marks)

5 Classify volumetric methods of analysis. Add a brief note to each class.

6 Explain the preparation 250 ml of 0.05M potassium permanganate and 500 ml of 0.1N hydrochloric acid as IP.

7 Explain Arrhenius theory and Lewis concept of acid bases.

8 Write and explain the ilkovic equation. Write its use.

9 Explain the preparation and standardization of 0.05M disodium edetate as per I P.

10 Explain the reasons for modifications and modifications made in Volhard's method for the estimation of halides.

11 List the applications of ceric ammonium sulphate titrations.

12 Explain the principle in the assay of vitamin C by iodometry and copper sulphate by iodometry.

13 Explain the working of glass electrode with a neat labelled diagram.

*****

Code: BP102T

R19

B.Pharm I Year I Semester (R19) Supplementary Examinations February 2022

PHARMACEUTICAL ANALYSIS

(For 2020 admitted batches only)

Time: 3 hours

Max. Marks: 75

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) List the different techniques of analysis.
(b) Define significant figures.
(c) Differentiate titrant and analyte.
(d) Write the pH range of phenolphthalein, methyl orange, phenol red and thymol blue.
(e) Define the term co-precipitation and post precipitation.
(f) Write the role digestion in gravimetry.
(g) Define the term oxidation with an example.
(h) Write and explain the Nernst equation.
(i) Define the terms EMF and Electrode potential.
(j) What are electrodes of first and second kind?

PART – B

(Answer any two questions: 02 X 10 = 20 Marks)

2 (a) List the requirements for a primary standard.
(b) Explain the preparation, storage and standardization of 500 ml of 0.05M potassium permanganate solution.

3 (a) Explain the Ostwald theory to explain the behaviour of acid base indicators.
(b) Classify the solvents used in non-aqueous titrations with suitable examples.

4 (a) Explain Mohr's method for the assay of ammonium chloride.
(b) Explain the precipitation from homogeneous solution.

PART – C

(Answer any seven questions: 07 X 05 = 35 Marks)

5 Explain the principle and a brief procedure in the limit test for Arsenic.

6 (i) How many moles and milli-moles of benzoic acid are contained in 5.00 g of pure acid?
(ii) Calculate the molarity of a solution of sodium chloride prepared by dissolving 1.47 g in 25 mL of water.

7 Explain the role and mechanism of action of mixed and multiple range acid base indicators.

8 Explain the effect of dissolved oxygen in polarographic analysis.

9 Explain Fajan's method for the estimation halides.

10 What are masking and demasking agents? Write their role in complexometry.

11 Explain the preparation and standardization of 500 ml of 0.05M iodine solution.

12 List the advantages of ceric ammonium sulphate as titrant over potassium permanganate

13 Define impurity. Discuss various sources of impurity.

*****

Code: BP102T

R19

B.Pharm I Year I Semester (R19) Regular & Supplementary Examinations August/September 2021

PHARMACEUTICAL ANALYSIS

Time: 3 hours

Max. Marks: 75

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Define accuracy and precession.
(b) What is monograph?
(c) Define indicator.
(d) Give the pH range of methyl orange and methyl red.
(e) Define masking.
(f) Define post precipitation.
(g) Define oxidation & reduction.
(h) Differentiate between iodometry and iodimetry.
(i) Define reference electrode with example.
(j) Write the reactions involved in standardization of potassium permanganate.

PART – B

(Answer any two questions: 02 X 10 = 20 Marks)

2 (a) Define primary standard substance with examples. Write the ideal properties of the same.
(b) Explain the various methods to minimize the errors.

3 (a) Describe the different types of complexometric titrations.
(b) Write the principle and reactions involved in the aasay of sodium benzoate.

4 (a) Describe the construction and working of glass electrode.
(b) Explain the various steps involved in gravimetry.

PART – C

(Answer any seven questions: 07 X 05 = 35 Marks)

5 (a) Write about molarity.
(b) Write about normality.

6 (a) Write the procedure for the standardization of approximately 0.5N HCl.
(b) Write about adsorption indicators.

7 What is diazotization reaction? Give example.

8 (a) Enlist the solvents used in nonaqueous titrations.
(b) Write the ideal properties of precipitate in gravimetry.

9 (a) Write the reactions involved in bromometry
(b) Write the applications potentiometry.

10 (a) Explain the modified Volhard's method.
(b) Write Nernest's equation with notations.

11 (a) Calculate the normality of sulphuric acid whose strength is 1.225 gm per 100 ml.
(b) Explain the errors of methods with examples.

12 Explain the leveling effect with example.

13 Explain the factors affecting conductance.

.....

Code: BP102T

R19

B.Pharm I Year I Semester (R19) Regular Examinations February 2020

PHARMACEUTICAL ANALYSIS

Time: 3 hours

Max. Marks: 75

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Define the term 'Reproducibility' and 'Repeatability'.
(b) Define significant figures.
(c) Define buffer capacity.
(d) Give the name of indicators used in non-aqueous titration.
(e) Distinguish between co-precipitation and post-precipitation.
(f) Give the names of indicators used in Fajan's method.
(g) Give the oxidation number of sulfur in: (i) SO_3. (ii) H_2SO_4.
(h) Why potassium iodide is added in the assay of iodine?
(i) Give the definition of: (i) Conductance. (ii) Equivalent conductance.
(j) Why supporting electrodes are used in polarography?

PART – B

(Answer any two questions: 02 X 10 = 20 Marks)

2 (a) Discuss the method of preparation and standardization of 1M NaOH.
(b) What do you mean by limit test? Discuss in brief the limit test of iron and lead.

3 (a) Give the principle of neutralization titration. What is an indicator range? Briefly state the important theory of acid-base indicator.
(b) Define precipitation. Enlist different methods of precipitation titration and explain Mohr's method in detail.

4 (a) Give the theory of redox titration. Discuss various indicators used in redox titration and add a note on permanganate titration.
(b) Describe potentiometric titration assembly with a well-labeled diagram. Briefly enumerate its working.

PART – C

(Answer any seven questions: 07 X 05 = 35 Marks)

5 Define primary standards with suitable examples.

6 State the law of mass action, derive the equation and write its application.

7 Explain Modified Volhard's method for precipitation titration.

8 Discuss the oxidation number method for calculating the equivalent of redox substance with two examples.

9 Describe Dropping Mercury electrode. What are its limitations?

10 Define the construction of: (i) Calomel electrode. (ii) Silver- Silver chloride electrode.

11 Describe non-aqueous titration and the solvents used in this titration.

12 Write a detailed note on cerimetry.

13 How gravimetric analysis is different from volumetric analysis? Give its advantages over other methods of analysis.

*****