



J.K.K. MUNIRAJAH MEDICAL RESEARCH FOUNDATION

ANNAI J.K.K. SAMPOORNI AMMAL COLLEGE OF PHARMACY

Ethirmedi, B. Komarapalayam-638 183, Namakkal Dist. Tamilnadu, India.

Approved by : Pharmacy Council of India. New Delhi & Affiliated to The Tamilnadu Dr. M.G.R Medical University, Chennai.

Website : www.jkkmmrfpharmacy.edu.in / E-Mail : principal@jkkmmrfpharmacy.edu.in

Contact No : +919789456750, +919943066944, +919943069944.

LESSION PLAN - Theory

SUBJECT : **Pharmaceutical Analysis I – Ist SEM (Theory)**

NAME OF THE STAFF : **Dr.P.Kalaiselvi**

DESIGNATION : **Asso.Professor,**
Department of Pharmaceutical analysis

Sessional	Number of Hours of Lecturer	No of Hours of Other Pedagogy	Total Number of Lecture Hours	Tutorial Classes
I	20	01	21	7
II	25	01	26	6
Total No of Hours	45	02	47	13

Sessional I – Unit I, Unit II, Unit III,
Sessional II - Unit IV, Unit V

Chapter	Sub Topics	Hrs.
Unit –I Pharmaceutical analysis	Different techniques of analysis Methods of expressing concentration Primary and secondary standards.	10Hrs 1
	Preparation and standardization of various molar and normal solutions-	1
	Oxalic acid, sodium hydroxide,	1
	hydrochloric acid, sodium thiosulphate,	1
	sulphuric acid, potassium permanganate and ceric ammonium sulphate	1
	Sources of errors, types of errors, methods of minimizing errors,	2
	accuracy, precision and significant figures	1
	Pharmacopoeia, Sources of impurities in medicinal agents, limit tests.	1
	1	1
Unit –II Acid base titration	Theories of acid base indicators,	10Hrs 1
	classification of acid base titrations	1

Dr. P. Kalaiselvi

Dr. N. Senthilkumar
Dr. N.SENTHILKUMAR,
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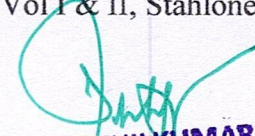
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	theory involved in titrations of strong, weak, and very weak acids and bases,	1
	neutralization curves	1
Non aqueous titration	Solvents	1
	acidimetry	2
	alkalimetry titration	1
	estimation of Sodium benzoate and Ephedrine HCl	1
Unit -III		10Hrs
Precipitation titrations:	Mohr's method,	1
	Volhard's, Modified Volhard's, Fajans method, estimation of sodium chloride.	1
Complexometric titration	Classification, metal ion indicators,	1
	Masking and demasking reagents,	1
Gravimetry	Estimation of Magnesium sulphate, and calcium gluconate.	1
	Principle and steps involved in gravimetric analysis.	1
	Purity of the precipitate: co-precipitation and post precipitation,	1
Diazotization titration	Estimation of barium sulphate	1
	Basic Principles, methods and application of diazotisation titration.	1
Unit- IV, Redox titrations	Concepts of oxidation and reduction	1
	Types of redox titrations (Principles and applications)	2
	Cerimetry,	1
	Iodimetry, Iodometry,	2
	Bromatometry, Dichrometry,	1
	Titration with potassium iodate	1
Unit-V		7hrs
	Introduction, Conductivity cell,	1
	Conductometric titrations,	1
Conductometry	Applications.	1
Potentiometry	Electrochemical cell, construction and working of reference electrode	1
	- Standard hydrogen, silver chloride electrode and calomel electrode	1
	Indicator electrodes -metal electrodes and glass electrode,	1
	Methods to determine end point of potentiometric titration and applications.	1
Polarography	Principle, Ilkovic equation,	1
	Construction and working of dropping mercury electrode	1
	Rotating platinum electrode, applications	1

Reference Books

1. A.H. Beckett & J.B. Stenlake's, Practical Pharmaceutical Chemistry Vol I & II, Stahlone Press of University of London
2. A.I. Vogel, Text Book of Quantitative Inorganic analysis

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LESSON PLAN- Practical

SUBJECT : Pharmaceutical analysis I Ist sem (practical)

NAME OF THE STAFF: Dr.P.Kalaiselvi

DESIGNATION : Asso.Professor

Department of Pharmaceutical analysis

Sessional	Number Of Practicals (Mention The Highest Number Amongst Various Batches)	Total Number Of Practical Hours (Number Of Practicals X 3)
I	9- A,B,C,D batch	9X4 = 36
II	10- A,B,C,D batch	10X4 = 40
Total Number Of Practicals/Hours	19\ 4hrs	19X4=76

I SESSIONAL

Practical number	Experiment	Hours
Limit Test of the following		
1.	Chloride	4hrs
2.	Sulphide	4hrs
3.	Iron	4hrs
4.	Arsenic	4hrs
Preparation and standardization		
5.	Sodium hydroxide , potassium permanganate	4hrs
6.	Sulphuric acid, ceric ammonium sulphate ,	4hrs

Polish


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II SESSIONAL

Practical number	Experiment	Hours
Assay of the following compounds along with Standardization of secondary standard		
1.	Ammonium chloride by acid base titration	4hrs
2.	Ferrous sulphate by Cerimetry	4hrs
3.	Copper sulphate by Iodometry	4hrs
4.	Calcium gluconate by complexometry	4hrs
5.	Hydrogen peroxide by Permanganometry	4hrs
6.	Sodium benzoate by non-aqueous titration	4hrs
7.	Potentiometric titration of strong acid against strong base	4hrs

Blair

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S.No	Title
1	limit test for chlorides
2	limit test for sulphate
3	limit test for iron
4	limit test for arsenic
5	preparation and standardisation of 0.1m sodium hydroxide
6	preparation and standardisation of 0.05m sulphuric acid
7	preparation and standardisation of 0.1m sodium thiosulphate
8	preparation and standardisation of 0.02m potassium permanganate
9	preparation and standardisation of 0.1m ceric ammonium sulphate
10	assay of ammonium chloride
11	estimation of ferrous sulphate
12	estimation of copper sulphate
13	assay of calcium gluconate
14	assay of hydrogen peroxide
15	assay of sodium benzoate
16	assay of sodium chloride
17	determination of normality of given acid by conductometric titration
18	determination of normality of mixture of acid by conductometric titration
19	potentiometric titration of strong acid against strong base
20	Determination of total hardness of water
21	calibration of volumetric flask

Reference

1. Bentley and Driver's Textbook of Pharmaceutical Chemistry
2. John H. Kennedy, Analytical chemistry principles
3. Indian Pharmacopoeia.

Bleech

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