

Mahendra Lokhande  
Sachin Khiste  
Omkar Kapse

# Practical Chemistry For Undergraduate Student

 **LAMBERT**  
Academic Publishing

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Undergraduate Student**

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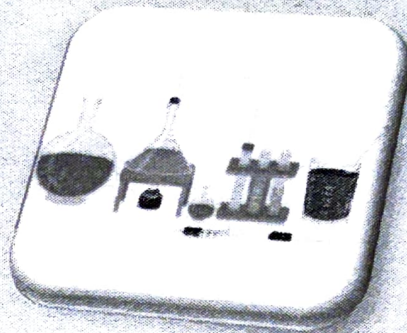
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# PRACTICAL CHEMISTRY

For  
Undergraduate Student



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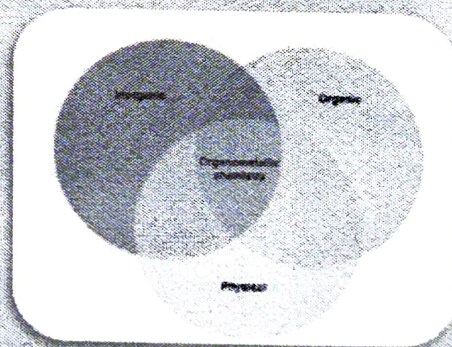
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**Exercise I: Chemistry Practicals**  
(Standard solutions to be prepared by students only)  
**16 Laboratory sessions**

Sr.No.	Experiment	P.No.
1)	Prepare 0.1N oxalic acid standard solution and find out the acid neutralizing capacity of an antacid using NaOH as an intermediate solution.	7
2)	To determine the strength of oxalic acid by titration with $\text{KMnO}_4$ .	9
3)	To determine percentage purity of Ferrous Ammonium Sulphate (FAS) by titration with $\text{KMnO}_4$ .	11
4)	To determine strength of FAS by titration with $\text{K}_2\text{Cr}_2\text{O}_7$ using internal indicator.	13
5)	To determine strength of $\text{K}_2\text{Cr}_2\text{O}_7$ by titration with FAS using internal indicator.	15
6)	Estimation of copper (II) in commercial copper sulphate sample by iodometric titration.	17
<b>b) Gravimetric Analysis</b>		
7)	Estimation of $\text{Ba}_2^+$ as $\text{BaSO}_4$ ,	21
8)	$\text{Fe}_3^+$ as $\text{Fe}_2\text{O}_3$ using china and silica crucible	22
<b>Exercise II: Physical Chemistry experiments</b> <b>10 Laboratory sessions</b>		
9)	To determine refractive index by Abbe's refractometer.	25
10)	To determine transition temperature of $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$ .	26
11)	To study kinetics of hydrolysis of methyl acetate catalyzed by acid.	28
12)	To study kinetics of saponification of ethyl acetate by NaOH. (Equal concentration)	30
13)	To determine solubility of benzoic acid at different temperature and heat of solution.	31

**Chemistry Practical**  
**Exercise III: Inorganic estimations 14 Laboratory sessions**

Sr.No.	Experiment	P.No.
14)	Chromatographic separation of binary mixture containing Cu(II), Co(II) and Ni(II) ions by paper chromatography and determination of R <sub>f</sub> values.	33
15)	Estimation of Zn(II) by complexometric titration.	37
16)	Estimation of hardness of water by complexometric-titration.	40
17)	To determine the strength of unknown calcium salt solution by complexometric titration	43
18)	Colorimetric or spectrophotometric estimation of Cu(II) in commercial copper sulphate sample as ammonia complex.	44
19)	To determination of concentration of unknown KMnO <sub>4</sub> solution from standard solutions of KMnO <sub>4</sub> by colorimetrically or spectrophotometrically.	46
<b>Exercise IV: Organic Chemistry Practicals</b> <b>12 Laboratory Sessions</b>		
20)	Determination of equivalent weight of an organic acid	49
21)	Isolation of casein from milk.	51
22)	Isolation of caffeine from tea leaves.	52
23)	Isolation of nicotine from tobacco leaves.	52
24)	Isolation of lycopene from tomato juice.	53
25)	Estimation of acetamide.	54
26)	Estimation of glucose	56

**Chemistry Practicals**  
**Total Laboratory sessions: 26**  
**Exercise V: Inorganic Preparation**

Sr.No.	Experiment	P.No.
27)	Preparation of tetramine copper (II) sulphat	59
28)	Preparation of hexaminenickel (II) chloride.	60
29)	Preparation of potassiumtrisoxalato alumiriate (III).	61
30)	Preparation of Prussian blue.	62
31)	Preparation of chrome alum.	63
<b>Physical Chemistry Experiment:</b>		
32)	To determine strength of given HCl solution conductometrically.	64
33)	To determine strength of given CH <sub>3</sub> COOH solution conductometrically.	65
34)	To determine strength of HCl and CH <sub>3</sub> COOH in a given mixture conductometrically.	67
35)	To determine the strength of HCl using NaOH Potentionmetrically.	69
36)	To determine redox potential of Fe <sup>+2</sup> /Fe <sup>+3</sup> system potentiometrically.	70
37)	To determine the molecular weight of the solute by Rast's method.	72
38)	To determine specific rotation of optically active compound by Polarimeter.	74

It suggests that there are values and ideas which are themselves outside science, which affect what is done as well as how it is done. The basic aim of writing the book is to enhance the knowledge of chemistry through simple logistic, methodology of learning. All the basic and regular topics from the Indian university curriculum have been fully covered. A large numbers of tables and calculation are included to minimize stress to solve the problems in practical.

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