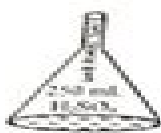


অধ্যায় ১: ল্যাবরেটরির নিরাপদ ব্যবহার



পটাসিয়াম কপ্টার, এখানে মোট পটাসিয়াম, আরও কপ্টারের শীর্ষস্থানীয় কপ্টারের পটাসিয়াম এবং মনোমের টেম্পের পটাসিয়াম
পটাসিয়াম উত্তর অধ্যায়িকিত মেট্রিক হলে। এগুলোর অনুবর্তন করলে তুমি এ অধ্যায়িকিত থেকে পটাসিয়াম পটাসিয়াম
এদের উত্তর লিখতে পারবে সহজেই।

প্রশ্ন ১



পাত্র-A



পাত্র-B

সি. কে. ১০/১০/১০

- মোলের প্রকণ কী?
- "কেলস পটাসিয়াম লবণের প্রকণতা, 'অপমাত্রা বৃদ্ধির সাথে সাথে এক পর্যায়ে বৃদ্ধি না পেয়ে হ্রাস পায়'— ব্যাখ্যা করো।
- A-পাত্রের বিন্যাসন এলিটের ভর কত নির্ণয় করো।
- প্রকণ দুটি মিশ্রিত করলে, মিশ্রণটি কী পরিমাণ অক্সিজেন দ্বারা পরিণত হবে— বিশ্লেষণ করো।

১ নং প্রশ্নের উত্তর

1000 mL প্রকণে কোন প্রকণের 1 mol প্রকণিত থাকলে উক্ত প্রকণকে মোলার প্রকণ বলে।

কেলস পটাসিয়াম লবণের প্রকণতা অপমাত্রা বৃদ্ধির সাথে সাথে এক পর্যায়ে বৃদ্ধি না পেয়ে হ্রাস পায়। এর কারণ, আপমাত্রা বৃদ্ধির সাথে সাথে প্রকণতা বৃদ্ধি পেতে থাকলেও একটি নির্দিষ্ট আপমাত্রার কেলস পটাসিয়াম লবণ নিষ্কৃতি হয়। তখন প্রকণতা হ্রাস পেতে থাকে। উদাহরণস্বরূপ $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$ এর কথা বলা যায়। $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$ এর ক্ষেত্রে পটাসিয়ামে প্রকণিত করার সময় বিয়োজন প্রক্রিয়াটি অপমাত্রা বৃদ্ধি 32.4°C আপমাত্রার উপরে $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$ যখন Na_2SO_4 এ পরিণত হয় তখন বিয়োজন প্রক্রিয়াটি অপোৎপাদী হয়। এ কারণে 32.4°C আপমাত্রার উপরে আপমাত্রা বৃদ্ধিজনিত কারণে প্রকণতার হ্রাস ঘটে।

প্রশ্ন ২

আমরা জানি,
 $w = SMV$
 $= (0.5 \times 98 \times 0.25) \text{ g}$
 $= 12.25 \text{ g}$
অতএব, প্রকণিত H_2SO_4 এর ভর
 $= 12.25 \text{ g}$

উদাহরণের A-পাত্রের অবস্থিতি,
 H_2SO_4 এর আণবিক ভর,
 $M = 1 \times 2 + 32 + 16 \times 4$
 $= 2 + 32 + 64$
 $= 98 \text{ g/mol}$
প্রকণের ঘনমাত্রা,
 $S = 0.5 \text{ M}$
প্রকণের আয়তন,
 $V = 250 \text{ mL}$
 $= \frac{250}{1000} = 0.25 \text{ L}$
প্রকণিত H_2SO_4 এর ভর, $w = ?$

প্রশ্ন-A: H_2SO_4 এর মোল সংখ্যা $= \left(0.5 \times \frac{250}{1000}\right) \text{ mol}$
 $= 0.125 \text{ mol}$

প্রশ্ন-B: Na_2CO_3 এর মোল সংখ্যা $= \left(0.11 \times \frac{250}{1000}\right) \text{ mol}$
 $= 0.077 \text{ mol}$

সম্প্রতিক বিক্রিয়া: $\text{H}_2\text{SO}_4 + \text{Na}_2\text{CO}_3 \rightarrow \text{Na}_2\text{SO}_4 + \text{H}_2\text{O} + \text{CO}_2$
সমীকরণ হতে পাই, 1 mol $\text{H}_2\text{SO}_4 = 1 \text{ mol Na}_2\text{CO}_3$

1 mol Na_2CO_3 বিক্রিয়া করে H_2SO_4 এর 1 mol এর সাথে
 $0.077 \text{ mol} \times 1 = 0.077 \text{ mol} \times 1 = 0.077 \text{ mol}$

অবশিষ্ট H_2SO_4 এর পরিমাণ $= (0.125 - 0.077) \text{ mol}$
 $= 0.048 \text{ mol}$

প্রশ্ন-A এর প্রকণের সাথে প্রশ্ন-B এর প্রকণের বিক্রিয়ার ফলে 0.048 mol H_2SO_4 অবশিষ্ট থাকায় মিশ্রিত প্রকণের প্রকৃতি হবে অক্সিজেন।

প্রশ্ন ২ একমাত্র ছাত্র ল্যাবরেটরিতে X-পদ্ধতিতে 10 mg এর প্রকণ প্রকণ এবং Y-পদ্ধতিতে 0.5 g পরিমাণ 2% $\frac{W}{V}$ HCl এর প্রকণ প্রকণ করে।

সি. কে. ১০/১০/১০

- নোড কাকে বলে?
- Cl_2 অপোনার— ব্যাখ্যা করো।
- উদাহরণের এলিটটির মোলার ঘনমাত্রা নির্ণয় করো।
- উদাহরণের কোন পদ্ধতি পরিবেশবান্ধব? বিশ্লেষণ করো।

২ নং প্রশ্নের উত্তর

নিউক্লিয়াসের চারদিকে যে নির্দিষ্ট ত্রিমাত্রিক স্থানে কোন ইলেক্ট্রন পাওয়ার সম্ভাব্যতা শূন্য তাকে নোড বলে।

সমযোজী বন্ধনে আবদ্ধ উভয় পরমাণুর তড়িৎ ঋণাত্মকতা এক হলে অর্থাৎ তড়িৎ ঋণাত্মকতার পার্থক্য শূন্য হলে সমযোজী বন্ধন গঠিত হয়। আর তড়িৎ ঋণাত্মকতার পার্থক্য 0.5 এর কম হলে অপোনার হয়। যেহেতু Cl এর তড়িৎ ঋণাত্মকতা 3.0 ও C অপোনার তড়িৎ ঋণাত্মকতার পার্থক্য $(3 - 3) = 0$, তাই Cl_2 বিশুদ্ধ সমযোজী ও অপোনার যৌগ। উল্লেখ্য যৌগিক অণুর ক্ষেত্রে এহুণ ঘটে থাকে।

উদাহরণে বর্ণিত এলিটটি হলো 2% $\left(\frac{W}{V}\right)$ HCl।

2% $\left(\frac{W}{V}\right)$ HCl এর অর্থ হলো—

100 mL প্রকণে HCl এর ভর 2g

∴ 1000 mL " " " " $\left(\frac{2 \times 1000}{100}\right) \text{ g}$
 $= 20 \text{ g}$

Hsc Chemistry Out Question

LL Leslie

A red circular graphic with a gradient, appearing as a semi-circle or a partial circle, located to the right of the LL Leslie text.

Hsc Chemistry Out Question:

Cambridge Checkpoints HSC Chemistry 2017-19 Maureen Slade, Roger Slade, 2016-06-29 Excel HSC Chemistry C. M. Roebuck, 2003 *Excel HSC Chemistry* Jim Stamell, 2011 ISBN 9781741252996 AUTHOR Jim Stamell RRP 39 95 PAGES 428 pp SPECIFICATION Softcover perfect bound 280 mm x 210 mm STATUS New edition PUBLICATION DATE April 2008 The EXCEL HSC Chemistry guide is directly linked to the syllabus with every single dot point of the HSC Chemistry syllabus appearing in the margin of the book You can write in the guide so your study is focused and your notes are structured This guide comes in a brand new format that makes even better use of your study time up to date coverage of the core topics plus 3 Option topics Industrial Chemistry Shipwrecks Corrosion and Conservation and Forensic Chemistry this guide is organised just like the HSC syllabus so the students learn to section the theoretical part is under routine headings and the students section the practical part is under headings like First hand Second hand and Investigations and Problem Solving %this way you will be able to see at a glance what the theoretical and practical work is all main headings in each chapter 1 1 2 1 etc are directly from the syllabus word for word %this way you can easily match the Excel guide to the syllabus an alphabetical list of all the key definitions and concepts you should know from each chapter %an efficient way of learning all the definitions in one go chapter syllabus checklist with every single dot point listed in checklist form for each chapter %a fantastic way of testing that you know all the work hundreds of key concept questions with answers %questions that test your recall of knowledge in each chapter HSC type questions for every section in each chapter with clock icons to tell you how much time you will have to answer the questions in the HSC %this way you can test yourself on HSC type questions under HSC type time pressure an examiner maximiser feature ticks to show the mark distribution and answers to all HSC type questions %all you need to answer HSC type questions two sample HSC papers with an examiner maximiser feature plus answers %not one but two up to date sample papers the Excel syllabus summary notes a detachable section at the end of the guide where every single dot point of each chapter is summarised for you% a comprehensive and compact summary of the whole course in 32 pages **Excel Revise in a Month HSC Chemistry** Will Marchment, 2007 *Excel Senior High School Hospitality* Cathy Smith, Georgina Buttel, Sonya Ankerholz-Potts, 2004 **Design and Technology** Deborah Trevallion, 2003 A Compendium of Geochemistry Yuan-Hui Li, 2000-10-22 A general understanding of these principles and processes including those pertaining to cosmology geology and biology is essential maintains the author for deciphering and predicting transport pathways and final sinks of anthropogenic pollutants in our environment BOOK JACKET

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9780768499803 Costly Anointing: The Requirements for Greatness In this book, teacher and prophetic songwriter Lori Wilke boldly reveals God's requirements for being entrusted with an awesome power and authority. The Plain and Simple Guide to Music Publishing The Plain and Simple Guide to Music Publishing: What You Need to Know About Protecting and Profiting from Music Copyrights, 3rd Edition · Book overview. The Plain & Simple Guide to Music... by Wixen, Randall D. This book, written by expert and industry veteran Randall Wixen presents a clear, concise approach on how music publishing works today. It breaks down complex ... Plain & Simple Guide To Music Publishing Music Publishing Primer. The following is an excerpt from The Plain & Simple Guide To Music Publishing, 2nd Edition by Randall Wixen, president and founder of ... The Plain & Simple Guide to Music Publishing - 4th Edition This book, written by expert and industry veteran Randall Wixen presents a clear, concise approach on how music publishing works today. It breaks down complex ... The Plain & Simple Guide to Music Publishing - 4th Edition ... This book, written by expert and industry veteran Randall Wixen presents a clear, concise approach on how music publishing works today. It breaks down complex ... The Plain and Simple Guide to Music Publishing - 4th Edition This book, written by expert and industry veteran Randall Wixen presents a clear, concise approach on how music publishing works today. It breaks down complex ... The Plain and Simple Guide to Music Publishing Must reading for anybody invested in songs, lyrics, or recordings. Foreword by Tom Petty. Hardcover or Kindle ebook by Randall D Wixen. PLAIN & SIMPLE GUIDE TO MUSIC PUBLISHING, THE This book, written by expert and industry veteran Randall Wixen presents a clear, concise approach on how music publishing works today. It breaks down complex ... The Plain and Simple Guide to Music Publishing Industry expert Randall Wixen covers everything from mechanical, performing and synch rights to sub-publishing, foreign rights, copyright basics, types of ...