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## PHYSICAL SCIENCES PAPER 2 (CHEMISTRY)

GRADE 12

### TERMS & DEFINITIONS, QUESTIONS & ANSWERS PER TOPIC

2021



### TABLE OF CONTENTS

HOW TO USE THIS DOCUMENT .....	2
TERMS AND DEFINITIONS .....	3
QUESTIONS .....	9
ORGANIC MOLECULES: NOMENCLATURE .....	9
ORGANIC MOLECULES: PHYSICAL PROPERTIES .....	17
ORGANIC MOLECULES: ORGANIC REACTIONS .....	24
REACTION RATE AND ENERGY IN CHEMICAL REACTIONS .....	31
CHEMICAL EQUILIBRIUM .....	42
ACIDS AND BASES .....	49
GALVANIC CELLS .....	56
ELECTROLYTIC CELLS .....	63
ANSWERS TO QUESTIONS .....	68
ORGANIC MOLECULES: NOMENCLATURE .....	68
ORGANIC MOLECULES: PHYSICAL PROPERTIES .....	74
ORGANIC MOLECULES: ORGANIC REACTIONS .....	80
REACTION RATE AND ENERGY IN CHEMICAL REACTIONS .....	86
CHEMICAL EQUILIBRIUM .....	96
ACIDS AND BASES .....	107
GALVANIC CELLS .....	114
ELECTROLYTIC CELLS .....	117
BIBLIOGRAPHY .....	119



# Question Paper 2 November 2014 Physical Science

**Sabine Zange**



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In a global inundated with displays and the cacophony of fast interaction, the profound energy and mental resonance of verbal artistry often fade in to obscurity, eclipsed by the constant assault of sound and distractions. Yet, situated within the lyrical pages of **Question Paper 2 November 2014 Physical Science**, a fascinating work of literary splendor that impulses with raw feelings, lies an unforgettable journey waiting to be embarked upon. Published with a virtuoso wordsmith, this interesting opus instructions viewers on an emotional odyssey, softly exposing the latent possible and profound influence embedded within the intricate internet of language. Within the heart-wrenching expanse with this evocative evaluation, we shall embark upon an introspective exploration of the book is key subjects, dissect its captivating publishing style, and immerse ourselves in the indelible impression it leaves upon the depths of readers souls.

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### **Table of Contents Question Paper 2 November 2014 Physical Science**

1. Understanding the eBook Question Paper 2 November 2014 Physical Science
  - The Rise of Digital Reading Question Paper 2 November 2014 Physical Science
  - Advantages of eBooks Over Traditional Books
2. Identifying Question Paper 2 November 2014 Physical Science
  - Exploring Different Genres
  - Considering Fiction vs. Non-Fiction
  - Determining Your Reading Goals
3. Choosing the Right eBook Platform
  - Popular eBook Platforms
  - Features to Look for in an Question Paper 2 November 2014 Physical Science
  - User-Friendly Interface
4. Exploring eBook Recommendations from Question Paper 2 November 2014 Physical Science
  - Personalized Recommendations

- Question Paper 2 November 2014 Physical Science User Reviews and Ratings
- Question Paper 2 November 2014 Physical Science and Bestseller Lists
- 5. Accessing Question Paper 2 November 2014 Physical Science Free and Paid eBooks
  - Question Paper 2 November 2014 Physical Science Public Domain eBooks
  - Question Paper 2 November 2014 Physical Science eBook Subscription Services
  - Question Paper 2 November 2014 Physical Science Budget-Friendly Options
- 6. Navigating Question Paper 2 November 2014 Physical Science eBook Formats
  - ePub, PDF, MOBI, and More
  - Question Paper 2 November 2014 Physical Science Compatibility with Devices
  - Question Paper 2 November 2014 Physical Science Enhanced eBook Features
- 7. Enhancing Your Reading Experience
  - Adjustable Fonts and Text Sizes of Question Paper 2 November 2014 Physical Science
  - Highlighting and Note-Taking Question Paper 2 November 2014 Physical Science
  - Interactive Elements Question Paper 2 November 2014 Physical Science
- 8. Staying Engaged with Question Paper 2 November 2014 Physical Science
  - Joining Online Reading Communities
  - Participating in Virtual Book Clubs
  - Following Authors and Publishers Question Paper 2 November 2014 Physical Science
- 9. Balancing eBooks and Physical Books Question Paper 2 November 2014 Physical Science
  - Benefits of a Digital Library
  - Creating a Diverse Reading Collection Question Paper 2 November 2014 Physical Science
- 10. Overcoming Reading Challenges
  - Dealing with Digital Eye Strain
  - Minimizing Distractions
  - Managing Screen Time
- 11. Cultivating a Reading Routine Question Paper 2 November 2014 Physical Science
  - Setting Reading Goals Question Paper 2 November 2014 Physical Science
  - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Question Paper 2 November 2014 Physical Science
  - Fact-Checking eBook Content of Question Paper 2 November 2014 Physical Science

- Distinguishing Credible Sources
- 13. Promoting Lifelong Learning
  - Utilizing eBooks for Skill Development
  - Exploring Educational eBooks
- 14. Embracing eBook Trends
  - Integration of Multimedia Elements
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for the nitration 4 01 ml of nitric acid 4 00 ml of sulfuric acid and 4 56 ml bromobenzene were used to complete the reaction with these measurements bromobenzene was found to be the limiting reagent since only 4 56 ml of bromobenzene was used

the amount of product predicted to be recovered was 8 7533 g

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the aim of the experiment is to determine and study electrophilic aromatic substitution reaction eas particularly nitration of methyl benzoate go give methyl m nitrobenzoate thus determine the weight melting point and percentage yield of the pure methyl m nitrobenzoate abstract

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in this experiment we will carry out the nitration of bromobenzene bromine substituted on an aromatic ring is an ortho para directing group it will direct an incoming electrophile to the ortho and para positions it is also deactivating meaning that its reactions will be slower than the identical reactions of benzene

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1 go to the restroom and wash the affected area with lots of soap and water the soap in the lab is not suitable for this purpose 2 return to the lab and apply mineral oil to the affected area 3 the summary to this warning is not to touch any part of your body while performing this experiment if you must leave the lab for any reason 1

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in the nitration of bromobenzene a mixture of sulfuric acid and nitric acid react with one another nitric acid the weaker of the two acids will serve as base to form nitronium ion bromobenzene will attack the nitronium ion by nucleophilic attack

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the bromine substituent in bromobenzene is an ortho para director the para position is favored due to steric effects in the reaction that takes place in this lab a nitro group is substituted onto bromobenzene at the para position to form 1-bromo-4-nitrobenzene

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over 5 minutes slowly pipet this bromobenzene into the icy cold nitration mixture  $\text{HNO}_3$  and  $\text{H}_2\text{SO}_4$  in the 125 ml flask and stir continue to stir the reaction mixture in the ice bath for 30 minutes do not heat in a new 250 ml erlenmeyer

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on the right the arenium cation has a nitro set with incredibly small 0.6 angstrom bond distances this will result in an optimization failure as the atoms are even closer for the programme to accommodate their electrons demonstration of creating the p arenium cation by nitration of bromobenzene

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the purpose of this lab was to observe where substituents are added on a benzene ring by way of electrophilic aromatic substitution the electrophilic source in the nitration of bromobenzene comes from a nitronium ion  $\text{NO}_2^+$  which acts as the electrophilic species

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nitration of bromobenzene is an electrophilic aromatic substitution reaction the electrophile will be formed from 4 0ml of nitric acid and 4 0ml of sulfuric acid and will then react with 4 5ml of bromobenzene this will produce o bromonitrobenzene and p bromonitrobenzene

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lab report 10 nitration of bromobenzene raekwon filmore cm 244 section 40 march 27 2018 introduction for this experiment nitration of bromobenzene was the focus of the lab the benzene is an aromatic compound and when it reacts with wither a mixture of sulfuric acid or nitric acid creates what is known as a nitro group