IGCSE Chemistry

Paper 6

Unsolved Topical

Past Papers with Mark Scheme

All Variants

2014-2021

Title IGCSE TOPICAL CHEMISTRY P6

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Legal Advisor Ashir Najeeb Khan (Advocate)
AKBAR LAW CHAMBERS
39-40, 1st Floor, Sadiq Plaza, The Mall, Lahore.
0307-4299886, 042-36314839

For Complaints/Order **MS Books**
83-B Ghalib Market Gulberg III Lahore
info@msbooks.pk
(042-35774780), (03334504507), (03334548651)

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PREFACE

Excellence in learning cannot be claimed without application of concepts in a dexterous way. In this regard one of the logical approach is to start in chunks; like chapter wise learning and applying the concept on exam based questions.

This booklet provides an opportunity to candidates to practice topic wise questions from previous years to the latest. Extensive working of Team MS Books has tried to take this booklet to perfection by collaborating with top of the line teachers.

We have added answer key / marks scheme at the end of each topic for the candidate to compare the his/her answer to the best.

MS Books strives to maintain actual spacing between consecutive questions and within options as per CAIE format which gives students a more realistic feel of attempting question.

Review, feedback and contribution in this booklet by various competent teachers of a subject belonging to renowned school chains make it most valuable resource and tool for both teachers and students.
With all belief in strength of this resource material I can confidently claim that it is worth in achieving brilliance.

Our sincere thanks and gratification to **Mr. Kamal Ahmad** who took out special time to help compile and manage this booklet. We would also like to appreciate chemistry faculty for reviewing and indorsing it.

REVIEWED & RECOMMENDED BY

Muhammad Ali
University of Cambridge, University of Wales
LGS Defence (Phase 1&5), LGS Paragon,
LACAS, BCCG, The City School CLC
0321-8859967

Zafar Iqbal
LACAS (Barki & JT) BSS ALJT, KIMS,
Crescent, LGS Paragon, ROOTS IVY
DHA Ph.5
0333-4227604

Waqar Ahmad
LACAS, ROOTS Millenieum,
Frobels International
0334-9543124

Qammar Fayyaz
LGS JT (Boys & Girls), City RAVI
0300-4266857

Kashif Ali Sehgal
LGS DHA & JT, City RAVI, ROOTS
Millenieum,
EX-BSS, EX-Aitchison
0322-4828628

Kamal Ahmad
LGS, BSS, CBS
0333-4567757

Tanvir Gill
BDC & BCCG
0301-4574832

IGCSE CHEMISTRY

Paper 6

CONTENT TABLE

Stoichiometry

Q4/61/M/J/16

1 Calcium burns in air to form calcium oxide. The reaction is vigorous and some of the calcium oxide can be lost as smoke.
Plan an investigation to determine the maximum mass of oxygen that combines to form calcium oxide when 2 g of calcium granules are burnt in air.
You are provided with common laboratory apparatus and calcium granules.

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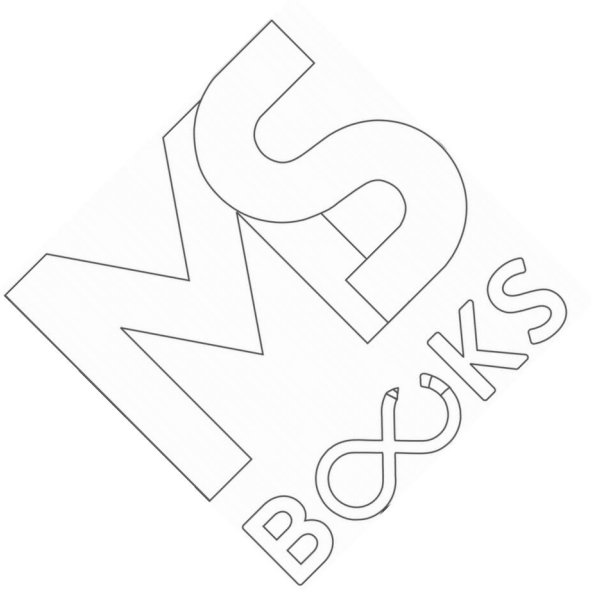
[Total: 6]



Q4/62/M/J/17

2 Calcium carbonate and kaolinite are both white solids found in sedimentary rocks.

Calcium carbonate reacts with dilute hydrochloric acid to form aqueous calcium chloride. Kaolinite does **not** react with dilute acids.

You are provided with a mixture of calcium carbonate and kaolinite and access to dilute hydrochloric acid.

Plan an experiment to determine the percentage by mass of calcium carbonate in the mixture.

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[Total: 6]

Q4/62/M/J/18

3 Aqueous solutions of barium hydroxide are alkaline.
Plan an investigation to find the concentration of an aqueous solution of barium hydroxide.

You are provided with an aqueous solution of barium hydroxide, dilute hydrochloric acid of known concentration and common laboratory apparatus.

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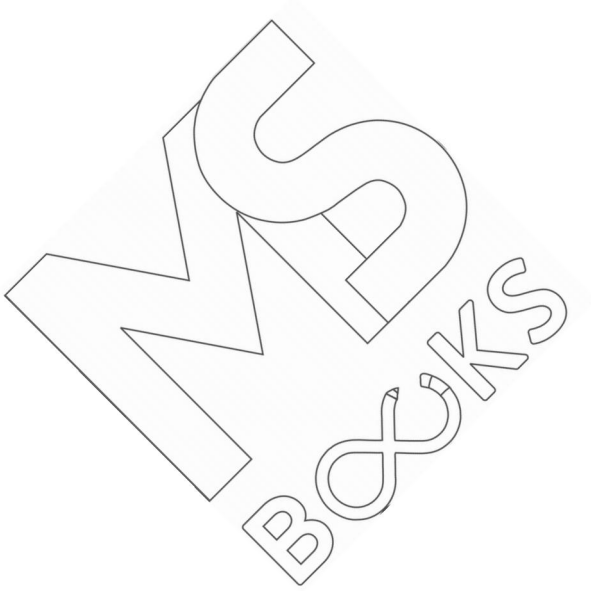
[Total: 6]



Q4/62/M/J/21

4 The mineral epsomite contains hydrated magnesium sulfate. When epsomite is heated strongly, it loses water and eventually becomes anhydrous magnesium sulfate.

Plan an investigation to find the percentage by mass of water in a sample of epsomite. Your plan should include how you would calculate the percentage by mass of water in epsomite.
You have access to common laboratory apparatus.

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Q4/61/M/J/16 **Q 1**

Question	Answer	Marks
4	any 6 from: weigh calcium; with lid / cover; heat / burn; allow air to enter / lift lid; cool; reweigh CaO; reheat to constant mass; calculate / find the difference;	**6**

Q4/62/M/J/17 **Q 2**

4		**6**
	the filtration method any 6 from: ∞ weigh mixture (of calcium carbonate and kaolinite) ∞ add (dilute) hydrochloric acid ∞ in excess / continue adding until there is no more fizzing / add until no more gas is evolved ∞ filter ∞ wash residue / kaolinite ∞ dry ∞ weigh residue / kaolinite ∞ (change in mass / initial mass) × 100 (%)	
	the gas collection / loss of mass method any 6 from: ∞ weigh mixture (of calcium carbonate and kaolinite) ∞ add (dilute) hydrochloric acid ∞ in excess / continue adding until there is no more fizzing / add until no more gas is evolved ∞ collect gas in a syringe / measure final total mass ∞ measure volume of gas / mass loss ∞ calculate moles of $CaCO_3$ / CO_2 ∞ calculate mass of $CaCO_3$ ∞ (mass of $CaCO_3$ / initial mass) × 100 (%)	
	the calcium chloride method any 4 from: ∞ weigh mixture (of calcium carbonate and kaolinite) ∞ add (dilute) hydrochloric acid ∞ in excess / continue adding until there is no more fizzing / add until no more gas is evolved ∞ filter	**1**

Q4/62/M/J/18 **Q 3**

Question	Answer	Marks
4	any **6** from: ∞ hydrochloric acid in burette / measuring cylinder (solutions can be reversed) ∞ measured volume of barium hydroxide solution (solutions can be reversed) ∞ in named container e.g. beaker / (conical) flask ∞ (named) indicator (ignore Universal Indicator) **OR** pH meter ∞ acid added gradually / slowly / dropwise / dripped ∞ until colour changes / endpoint / neutral / pH 7 ∞ note volume added / initial and final volumes ∞ calculation (using volumes and concentration of the acid)	**max 6**

Q4/62/M/J/21 **Q 4**

Question	Answer	Marks
4	any 6 from: • weighed sample / stated mass (e.g. 5 g) / known mass of epsomite • in a crucible • heated (strongly using a Bunsen burner / spirit burner) • reweigh • heat again, reweigh, continue until mass stops changing • calculate mass of water lost by original mass – final mass • calculate percentage water by 100 × mass water / original mass	**6**

Q2/62/O/N/21 **Q 5**

Question	Answer	Marks
2(a)	**M1** Experiment 1 burette readings completed correctly (31.6 and 8.0)	**1**
	M2 Experiment 2 burette readings completed correctly (15.9 and 4.1)	**1**
	M3 Experiment 3 burette readings completed correctly (26.4 and 2.7)	**1**
	M4 All subtractions to give volume added correct (23.6, 11.8, 23.7)	**1**
	M5 All readings / volumes are given to 1 dp or better	**1**
2(b)	(from) red (to) orange	**1**
2(c)	effervescence / fizzing / bubbles	**1**