

CHEMISTRY

0620 Paper 6

2017 — 2023

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CHEMISTRY 0620

TOPICAL PAST PAPER WORKSHEETS

2017 - 2023 | Questions + Mark scheme

AVAILABLE PAPERS

P1

1362 Questions

P2

1385 Questions

P3

715 Questions

P4

550 Questions

P6

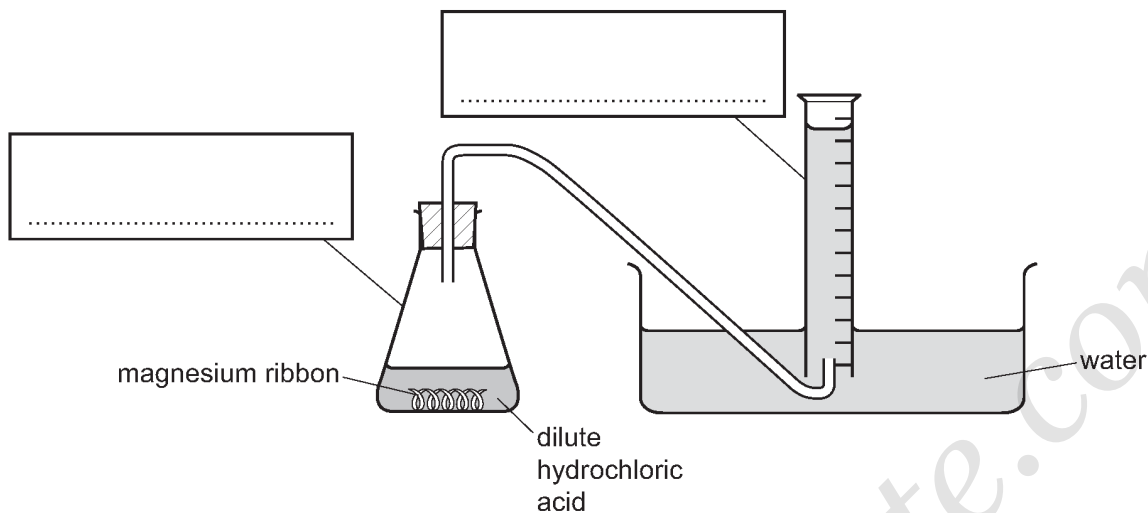
186 Questions

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TOPICS	P1	P2	P3	P4	P6
STATES OF MATTER	57	38	31	9	1
SEPARATING SUBSTANCES	71	66	24	12	33
ATOMS & ELEMENTS	82	67	65	50	1
ATOMS COMBINING	87	99	64	46	0
REACTING MASSES & CHEMICAL EQUATIONS	39	57	32	38	4
USING MOLES	5	13	2	28	3
REDOX REACTIONS	31	44	20	6	0
ELECTRICITY & CHEMICAL CHANGES	48	54	37	33	3
ENERGY CHANGES & REVERSIBLE REACTIONS	88	103	26	34	18
THE SPEED OF A REACTION	57	64	38	27	31
ACIDS & BASES	108	113	54	47	32
THE PERIODIC TABLE	133	114	57	28	0
THE BEHAVIOR OF METALS	74	76	44	19	3
MAKING USE OF METALS	73	71	30	30	1
AIR & WATER	69	67	41	16	2
SOME NON-METALS & THEIR COMPOUNDS	80	97	37	27	2
ORGANIC CHEMISTRY	172	151	62	50	1
POLYMERS	47	71	17	28	1
IN THE LAB (CHEMICAL TEST & SALT ANALYSIS)	41	20	34	22	50

1 - (0620/62_Summer_2017_Q1) - States Of Matter

A student investigated the rate of reaction between an excess of dilute hydrochloric acid and magnesium ribbon. The apparatus is shown.



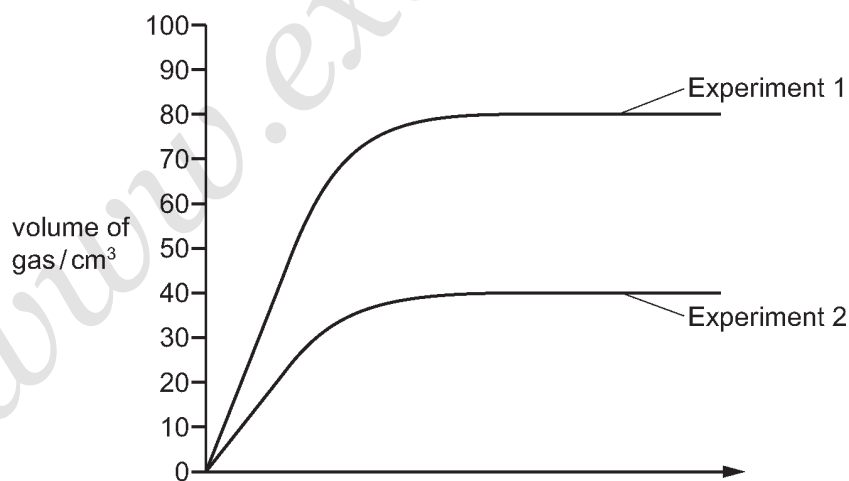
Two experiments were carried out. The temperature was the same in each case.

(a) Complete the boxes to identify the apparatus. [2]

(b) Give **one** observation expected during this reaction.

..... [1]

Graphs were drawn from the results for each experiment as shown.



(c) Label the x-axis of the graph. [2]

(d) (i) Give the volumes of gas at which the **two** graphs level out and compare these values.

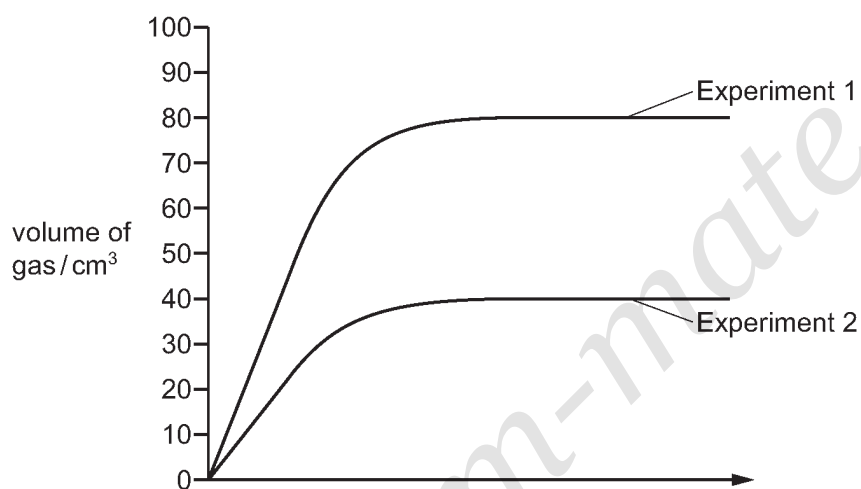
.....
..... [2]

(ii) Suggest why the graphs level out at different volumes.

..... [1]

(iii) The graph has been drawn again.

Draw the curve expected if Experiment 1 were repeated using the same mass of magnesium powder instead of magnesium ribbon.

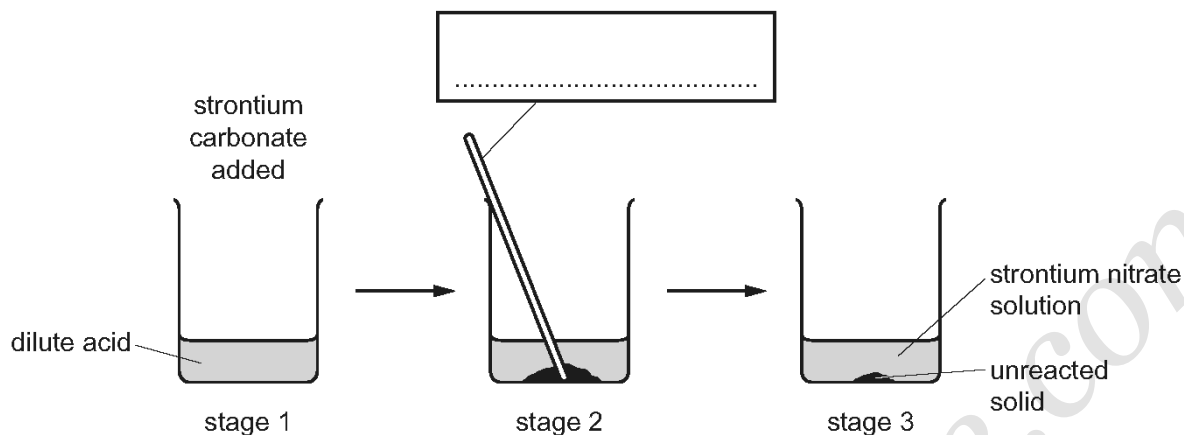


[2]

1 - (0620/61_Summer_2017_Q1) - Separating Substances

A student prepared strontium nitrate crystals.

The diagram shows some of the stages in this preparation.



(a) (i) Complete the box to identify the apparatus. [1]

(ii) What is used to add the strontium carbonate to the acid in stage 1?
 [1]

(iii) Name the dilute acid used.
 [1]

(iv) Give one expected observation in stage 2.
 [1]

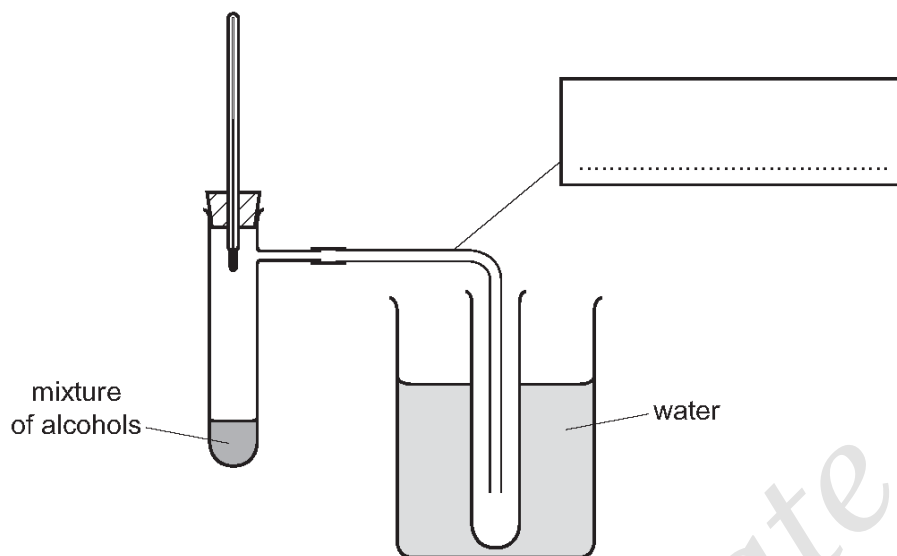
(b) Why is heat not necessary in stage 2?
 [1]

(c) Which of the reactants is in excess? Explain your answer.
 [2]

(d) Describe how crystals of strontium nitrate could be obtained from the mixture in stage 3.
 [3]

2 - (0620/63_Summer_2017_Q1) - Separating Substances

A mixture of alcohols can be separated by fractional distillation. The apparatus shown was used to separate ethanol from the mixture.



(a) (i) Complete the box to identify the apparatus. [1]

(ii) Indicate with an arrow where heat is applied. [1]

(b) What is the purpose of the water?

.....
 [2]

(c) Why is the thermometer bulb placed as shown and not in the mixture of alcohols?

.....
 [1]

(d) Use the letter E to indicate on the diagram where ethanol would collect. [1]

(e) (i) Suggest a simple chemical test to show that the liquid collected is ethanol and not water.
 [1]

(ii) Give a physical test to identify pure ethanol.
 [1]

3 - (0620/63_Summer_2017_Q3) - Separating Substances

Two substances, solid J and solution K, were analysed. Solution K was hydrogen peroxide. Tests on each substance were carried out. The observations are shown.

tests	observations
tests on solid J Appearance of solid J.	black solid
test 1 Dilute hydrochloric acid was added to solid J. The mixture was heated and the gas given off was tested with damp litmus paper.	blue litmus turned white
tests on solution K Solution K was divided into two equal portions in two test-tubes. test 2 Iron(II) sulfate crystals were added to the first portion of the solution. The mixture was shaken and aqueous sodium hydroxide was added to the mixture.	red-brown precipitate formed
test 3 Solid J was added to the second portion of the solution. The gas given off was tested with a splint.	glowing splint relit solid J was unchanged

(a) Name the gas given off in test 1.

..... [1]

(b) (i) Name the precipitate formed in test 2.

..... [2]

(ii) A new test 2 was carried out. Iron(II) sulfate crystals were added to water, the mixture was shaken and then aqueous sodium hydroxide was added.

What would be observed?

..... [2]

(c) Name the gas given off in test 3.

..... [1]

(d) What conclusions can you draw about solid J?

.....
..... [2]

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ANSWERS

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1 - (0620/62_Summer_2017_Q1) - States Of Matter

(a)	measuring cylinder	1
	conical flask	1
(b)	bubbles / fizz / effervescence	1
(c)	time (taken)	1
	s / seconds / secs	1
(d)(i)	80 and 40 (cm ³)	1
	Experiment 1 at twice / double the volume of Experiment 2	1
(d)(ii)	two times as much / mass / amount / length magnesium used (in Experiment 1)	1
(d)(iii)	curve drawn is steeper than Experiment 1	1
	curve drawn finishes at the same level as Experiment 1	1

1 - (0620/61_Summer_2017_Q1) - *Separating Substances*

(a)(i)	stirrer / glass rod	1
(a)(ii)	Spatula	1
(a)(iii)	nitric (acid)	1
(a)(iv)	bubbles / fizz / effervescence	1
(b)	the reaction is (fast) at room temperature	1
(c)	strontium carbonate	1
	solid is left behind	1
(d)	filter	1
	heat / evaporate	1
	to crystallising point / glass rod test / until saturation point	1

2 - (0620/63_Summer_2017_Q1) - *Separating Substances*

(a)(i)	(delivery) tube	1
(a)(iii)	arrow beneath the tube containing the mixture of alcohols	1
(b)	to cool	1
	the gas into a liquid	1
(c)	to measure the temperature of the vapour / temperature of liquid would not be constant	1
(d)	E shown on the test-tube in water bath	1
(e)(i)	lighted splint ignites the liquid / test for water, e.g. add anhydrous copper(II) sulfate gives a negative result	1
(e)(ii)	melting / boiling point determination	1

3 - (0620/63_Summer_2017_Q3) - *Separating Substances*

(a)	chlorine	1
(b)(i)	iron(III)	1
	hydroxide	1
(b)(ii)	green	1
	precipitate	1
(c)	oxygen	1
(d)	catalyst	1
	transition element compound / manganese oxide	1

4 - (0620/61_Summer_2017_Q4) - *Separating Substances*

(a)	(red) litmus turns blue	1
(b)	heat / boil the mixture	1
	condense the vapour	1
(c)	filter / decant	1
	wash residue (with water)	1
	dry	1