1334 - (0620-S 2012-Paper 1 (Core)/1-Q15) - *ACIDS AND BASES, IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

A gas is escaping from a pipe in a chemical plant.

A chemist tests this gas and finds that it is alkaline.

What is this gas?

A ammonia

B chlorine

C hydrogen

D sulfur dioxide

1335 - (0620-S 2012-Paper 1 (Core)/1-Q16) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

The results of three tests on a solution of compound X are shown in the table.

test	result
aqueous sodium hydroxide added	white precipitate formed, soluble in excess
aqueous ammonia added	white precipitate formed, insoluble in excess
acidified silver nitrate added	white precipitate formed

What is compound X?

A aluminium bromide

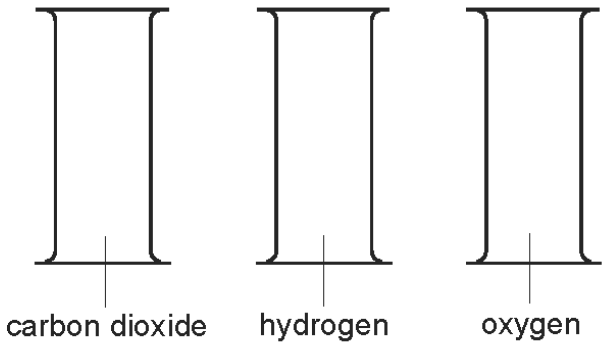
B aluminium chloride

C zinc bromide

D zinc chloride

1336 - (0620-S 2012-Paper 1 (Core)/2-Q18) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

Three gas jars contain carbon dioxide, hydrogen and oxygen, as shown.



Which one of the following tests could be used to discover which gas is in each jar?

A a glowing splint

B a lighted splint

C damp blue litmus paper

D limewater

1337 - (0620-W 2012-Paper 1 (Core)/1-Q3) - *SEPARATING SUBSTANCES, IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

Part of the instructions in an experiment reads as follows.

Quickly add 50 cm^3 of acid.

What is the best piece of apparatus to use?

A a burette

B a conical flask

C a measuring cylinder

D a pipette

1338 - (0620-W 2013-Paper 1 (Core)/1-Q2) - *THE SPEED OF A REACTION, IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

A student measures the rate of two reactions.

In one reaction, there is a change in mass of the reactants during the reaction.

In the second reaction, there is a change in temperature during the reaction.

Which piece of apparatus would be essential in **both** experiments?

A balance

B clock

C pipette

D thermometer

1339 - (0620-W 2013-Paper 1 (Core)/1-Q20) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

Compound X is tested and the results are shown in the table.

test	result
aqueous sodium hydroxide is added, then heated gently	gas given off which turns damp red litmus paper blue
dilute hydrochloric acid is added	effervescence, gas given off which turns limewater milky

Which ions are present in compound X?

A ammonium ions and carbonate ions

B ammonium ions and chloride ions

C calcium ions and carbonate ions

D calcium ions and chloride ions

1340 - (0620-W 2013-Paper 1 (Core)/3-Q20) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

The cations shown are identified by the colour of the precipitates formed when an excess of an aqueous solution of X is added.

cations present	effect of adding an excess of aqueous X
iron(II) (Fe^{2+})	green precipitate
copper(II) (Cu^{2+})	light blue precipitate
iron(III) (Fe^{3+})	red-brown precipitate

What is X?

A ammonia

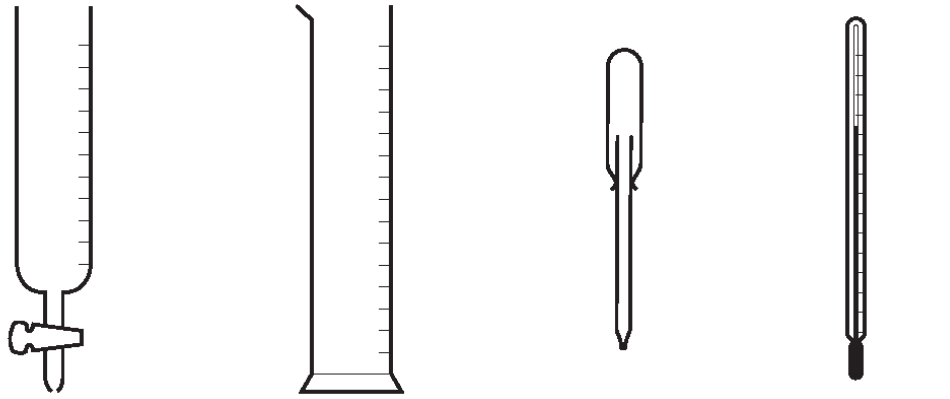
B limewater

C silver nitrate

D sodium hydroxide

1341 - (0620-S 2014-Paper 1 (Core)/1-Q2) - *SEPARATING SUBSTANCES, IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

The four pieces of apparatus shown below are used in chemical experiments.



Which statement about the apparatus is correct?

A The burette measures the volume of liquid added in a titration.

B The measuring cylinder measures the mass of a substance used in an experiment.

C The pipette measures the volume of gas given off in a reaction.

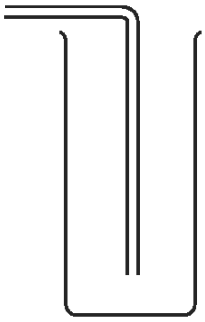
D The thermometer measures the density of a solution.

1342 - (0620-S 2014-Paper 1 (Core)/3-Q16) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

An experiment is carried out to investigate the rate of reaction when calcium carbonate is reacted with hydrochloric acid.

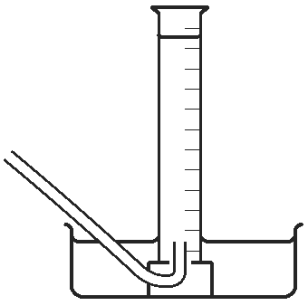
The volume of carbon dioxide gas given off is measured at different intervals of time.

The diagram shows pieces of apparatus used to collect gases.



1
downward delivery

2
gas measuring syringe



3
over water in graduated tube

Which apparatus is suitable to collect and measure the volume of the carbon dioxide?

A 1, 2 and 3 **B** 2 and 3 only **C** 1 only **D** 3 only

1343 - (0620-W 2014-Paper 1 (Core)/3-Q19) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

A colourless solution is tested by the following reactions.

Which reaction is **not** characteristic of an acid?

A A piece of magnesium ribbon is added. Bubbles are seen and the magnesium disappears.

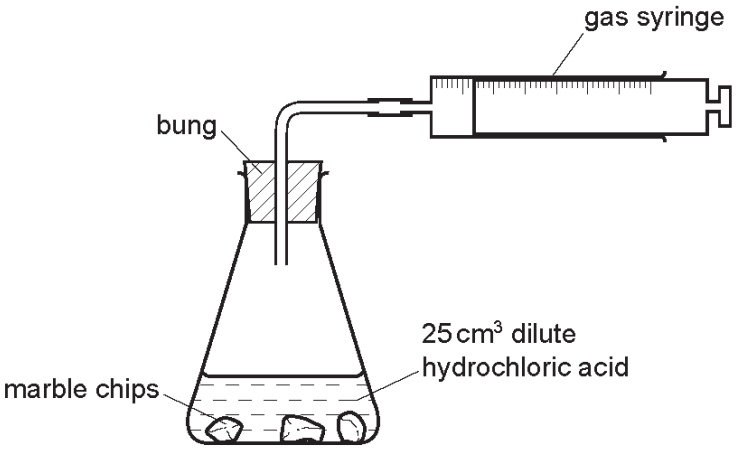
B A pungent smelling gas is produced when ammonium carbonate is added.

C Copper oxide powder is added and the mixed is warmed. The solution turns blue.

D The solution turns blue litmus red.

1344 - (0620-S 2015-Paper 1 (Core)/1-Q2) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

A student uses the apparatus shown in the diagram below to measure the volume of carbon dioxide gas made when different masses of marble chips are added to 25 cm^3 of dilute hydrochloric acid.



Which other items of apparatus are needed?

A funnel and balance

B funnel and stopwatch

C measuring cylinder and balance

D measuring cylinder and stopwatch

1345 - (0620-S 2015-Paper 1 (Core)/2-Q2) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

The results of some tests on a colourless liquid X are shown.

- Boiling point = 102 °C
- Universal Indicator turns green

What is X?

A ethanol

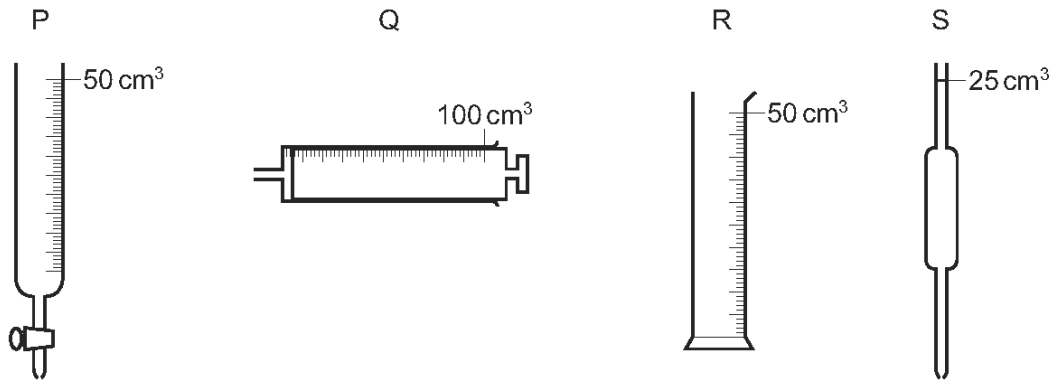
B hydrochloric acid

C pure water

D sodium chloride (salt) solution

1346 - (0620-W 2015-Paper 1 (Core)/1-Q2) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

P, Q, R and S are pieces of apparatus.



Which row describes the correct apparatus for the measurement made?

	apparatus	measurement made
A	P	the volume of acid added to alkali in a titration
B	Q	1 cm^3 of acid to add to calcium carbonate in a rate-determining experiment
C	R	75 cm^3 of a gas given off in a rate-determining experiment
D	S	20 cm^3 of alkali for use in a titration

1347 - (0620-W 2015-Paper 1 (Core)/1-Q14) - *ENERGY CHANGES AND REVERSIBLE REACTIONS, IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

Some crystals of hydrated cobalt(II) chloride are heated in a test-tube until no further change is observed.

The test-tube is allowed to cool and a few drops of water are then added to the contents.

Which colours are observed?

	before heating	after heating	after adding water
A	blue	pink	blue
B	blue	white	blue
C	pink	blue	pink
D	white	blue	white

1348 - (0620-W 2016-Paper 2 (Extended)/1-Q23) - *ACIDS AND BASES, IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

Four substances, P, Q, R and S, are tested as shown.

test	substance			
	P	Q	R	S
dilute hydrochloric acid added	gas given off which 'pops' with a lighted splint	gas given off which turns limewater milky	no reaction	no reaction
dilute aqueous sodium hydroxide added and warmed gently	no reaction	no reaction	gas given off which turns damp, red litmus paper blue	no reaction

What are P, Q, R and S?

	P	Q	R	S
A	Mg	Na_2CO_3	NH_4Cl	$NaCl$
B	Mg	NH_4Cl	Na_2CO_3	$NaCl$
C	Mg	Na_2CO_3	$NaCl$	NH_4Cl
D	Na_2CO_3	Mg	$NaCl$	NH_4Cl

1349 - (0620-W 2016-Paper 2 (Extended)/2-Q23) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

Aqueous sodium hydroxide was added slowly, until in excess, to separate solutions of W, X, Y and Z.

The results are shown.

solution	initial observation with aqueous sodium hydroxide	final observation with excess aqueous sodium hydroxide
W	white precipitate formed	precipitate dissolves
X	white precipitate formed	no change
Y	pale blue precipitate formed	no change
Z	green precipitate formed	no change

Which row identifies the metal ions in the solutions?

	metal ion in solution W	metal ion in solution X	metal ion in solution Y	metal ion in solution Z
A	aluminium	calcium	copper(II)	iron(II)
B	aluminium	calcium	iron(II)	copper(II)
C	aluminium	iron(II)	calcium	copper(II)
D	calcium	aluminium	copper(II)	iron(II)

1350 - (0620-W 2016-Paper 2 (Extended)/3-Q23) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

Compound T is added to dilute hydrochloric acid and warmed gently.

The mixture gives off a gas which turns acidified aqueous potassium manganate(VII) from purple to colourless.

A flame test on compound T gives a lilac flame.

What is compound T?

A sodium sulfate

B sodium sulfite

C potassium sulfate

D potassium sulfite

1351 - (0620-W 2017-Paper 2 (Extended)/1-Q20) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

What is used to test for chlorine?

A a glowing splint

B damp litmus paper

C limewater

D potassium manganate(VII) solution

1352 - (0620-W 2017-Paper 2 (Extended)/1-Q28) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

Information about the nitrates and carbonates of two metals, Q and R, is shown.

	appearance	solubility in water	effect of heat
nitrate of Q	white solid	soluble	colourless gas evolved which relights a glowing splint
carbonate of Q	white solid	soluble	no reaction
nitrate of R	white solid	soluble	brown gas evolved
carbonate of R	white solid	insoluble	colourless gas evolved which turns limewater milky

Which statement is correct?

A Q is calcium and R is magnesium.

B Q is magnesium and R is sodium.

C Q is potassium and R is copper.

D Q is sodium and R is calcium.

1353 - (0620-W 2017-Paper 2 (Extended)/3-Q28) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

Some metal nitrates and carbonates decompose when heated strongly.

Metal Q has a nitrate that decomposes to give a salt and a colourless gas only.

The carbonate of metal Q does not decompose when heated with a Bunsen burner.

What is metal Q?

A calcium

B copper

C sodium

D zinc

1354 - (0620-W 2017-Paper 2 (Extended)/1-Q34) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

Some marble chips (calcium carbonate) are heated strongly and substances X and Y are formed.

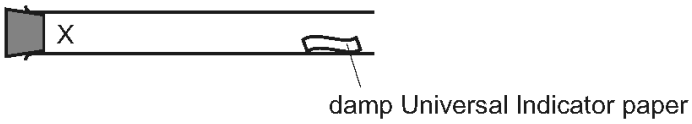
Substance X is a white solid that reacts with water, giving out heat. Substance Y is a colourless gas.

What are substances X and Y?

	X	Y
A	calcium chloride	oxygen
B	calcium hydroxide	carbon dioxide
C	calcium oxide	carbon dioxide
D	calcium sulfate	oxygen

1355 - (0620-S 2018-Paper 2 (Extended)/2-Q1) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

A gas is released at point X in the apparatus shown.



Which gas turns the damp Universal Indicator paper red most quickly?

A ammonia, NH_3

B chlorine, Cl_2

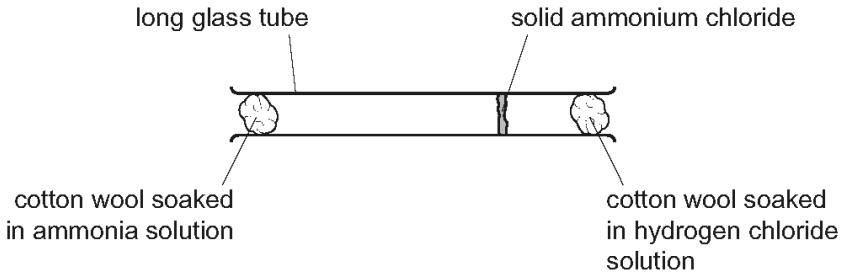
C hydrogen chloride, HCl

D sulfur dioxide, SO_2

1356 - (0620-S 2018-Paper 2 (Extended)/3-Q1) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

Ammonia gas is reacted with hydrogen chloride gas using the apparatus shown.

Solid ammonium chloride is produced.



Which statement explains why the solid ammonium chloride is formed nearer to the hydrogen chloride?

A Ammonia solution is a base and hydrogen chloride solution is an acid.

B Ammonia molecules diffuse more slowly than hydrogen chloride molecules.

C Hydrogen chloride has a greater molecular mass than ammonia.

D Hydrogen chloride moves by Brownian motion.

1357 - (0620-S 2018-Paper 2 (Extended)/1-Q19) - *IN THE LAB (CHEMICAL TEST& SALT ANALYSIS)*

A student mixes silver nitrate and barium chloride to form a white precipitate of silver chloride.

The equation is shown.

$$2AgNO_3 + BaCl_2 \rightarrow 2AgCl + Ba(NO_3)_2$$

Which row describes the solubility of the salts?

	soluble	insoluble
A	silver nitrate	barium chloride, barium nitrate and silver chloride
B	silver nitrate and barium chloride	barium nitrate and silver chloride
C	silver nitrate, barium chloride and barium nitrate	silver chloride
D	silver nitrate, barium chloride and silver chloride	barium nitrate