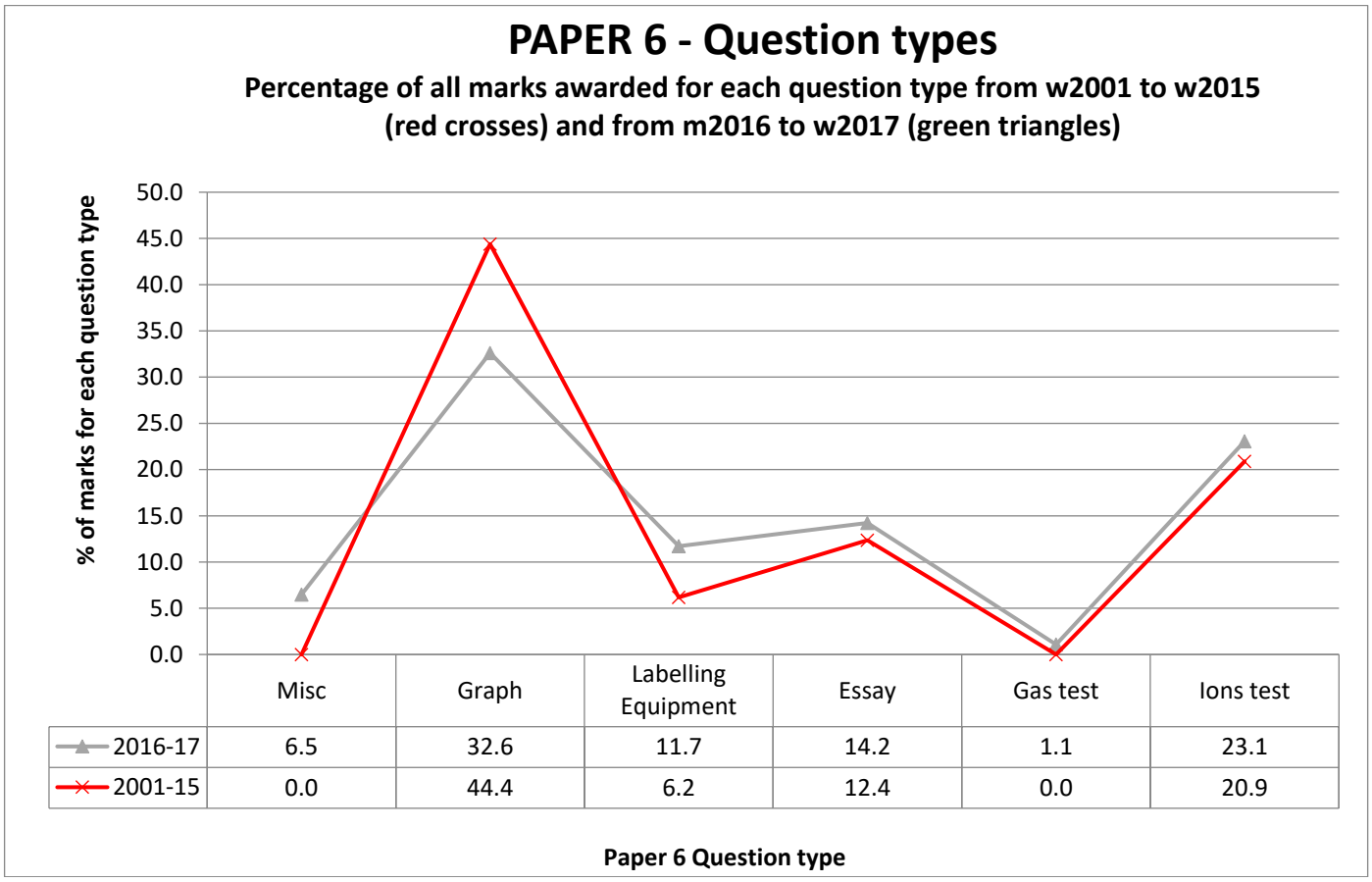
iG Chem EQ P6 2001w to 2015w Labelling Lab Equipment 86marks



AO3 Experimental skills and investigations

Candidates should be able to:

- demonstrate knowledge of how to safely use techniques, apparatus and materials (including following a sequence of instructions where appropriate)
- plan experiments and investigations
- make and record observations, measurements and estimates
- interpret and evaluate experimental observations and data
- evaluate methods and suggest possible improvements.

Weighting for assessment objectives

The approximate weightings allocated to each of the assessment objectives (AOs) are summarised below.

Assessment objectives as a percentage of the qualification

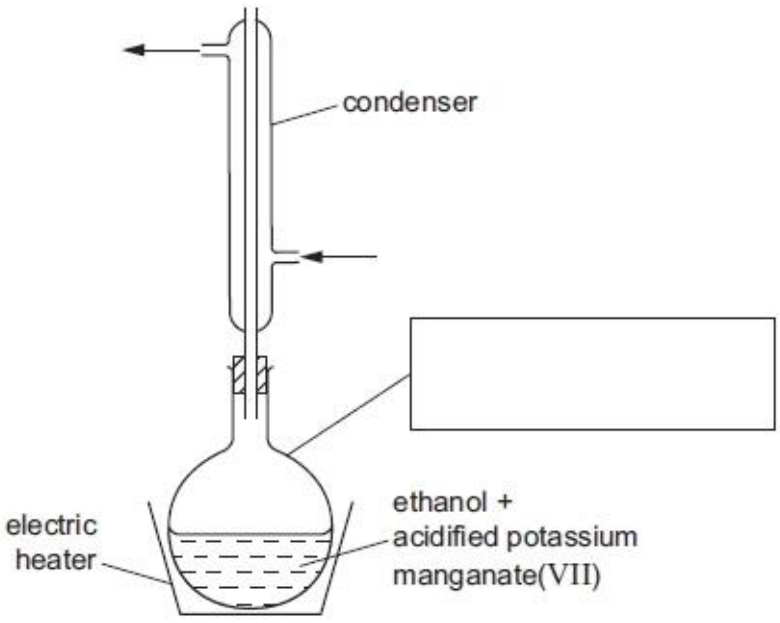
Assessment objective	Weighting in IGCSE %
AO1 Knowledge with understanding	50
AO2 Handling information and problem solving	30
AO3 Experimental skills and investigations	20

Assessment objectives as a percentage of each component

Assessment objective	Weighting in components %		
	Papers 1 and 2	Papers 3 and 4	Papers 5 and 6
AO1 Knowledge with understanding	63	63	0
AO2 Handling information and problem solving	37	37	0
AO3 Experimental skills and investigations	0	0	100

Q# 1/ iGCSE Chem/2015s/Paper 6/

1 Ethanol was reacted with hot acidified potassium manganate(VII) solution using the apparatus below. Ethanoic acid was formed.

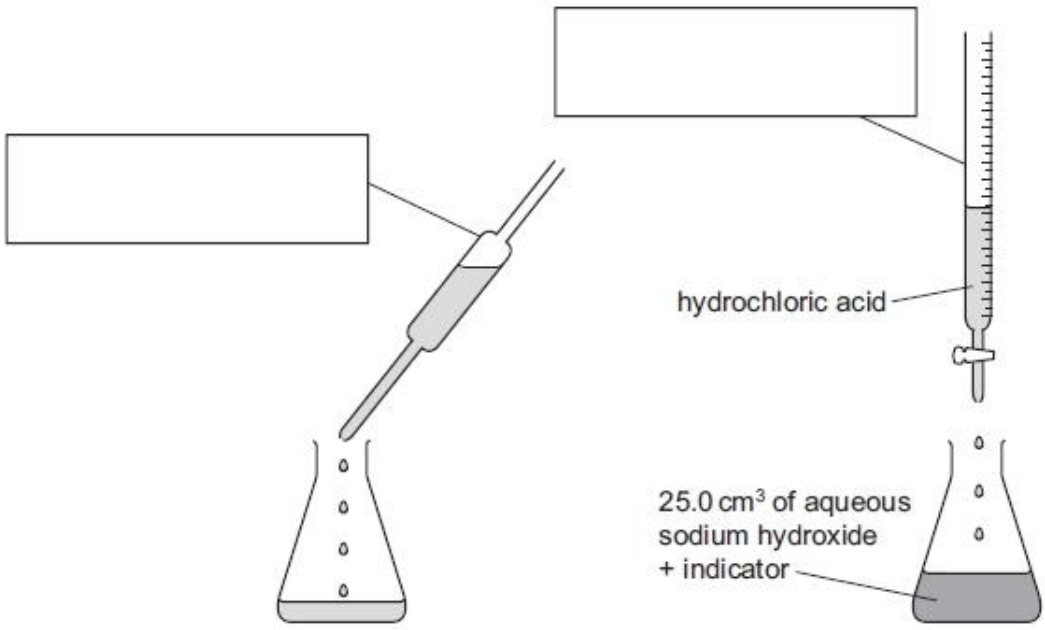


(a) (i) Complete the box to identify the piece of apparatus labelled. [1]

(ii) Label the arrows. [1]

Q# 2/ iGCSE Chem/2015/w/Paper 62/

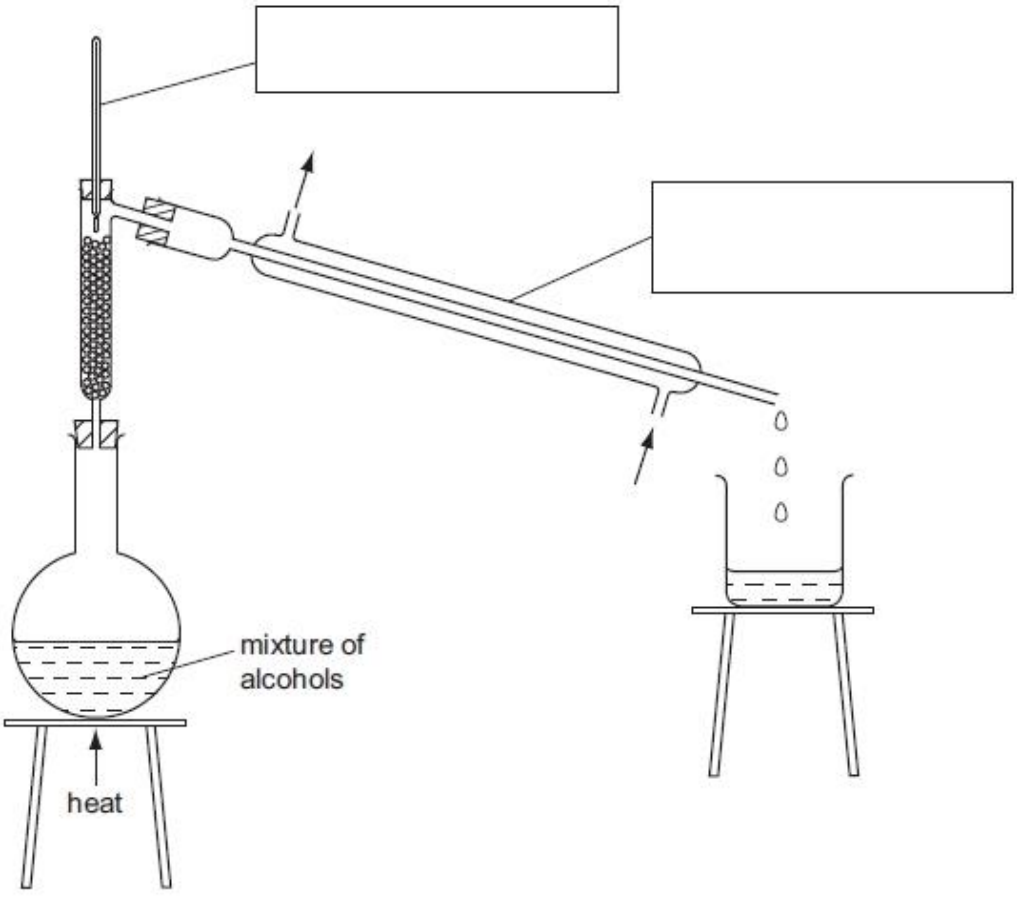
1 The volume of hydrochloric acid that reacts with 25.0 cm^3 of aqueous sodium hydroxide can be found using the apparatus below.



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

Q# 3/ iGCSE Chem/2014s/Paper 6/

1 A student separated a mixture of two alcohols, ethanol (boiling point 78 °C) and butanol (boiling point 118 °C).
The apparatus used is shown below.



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

(b) Label the arrows. [1]

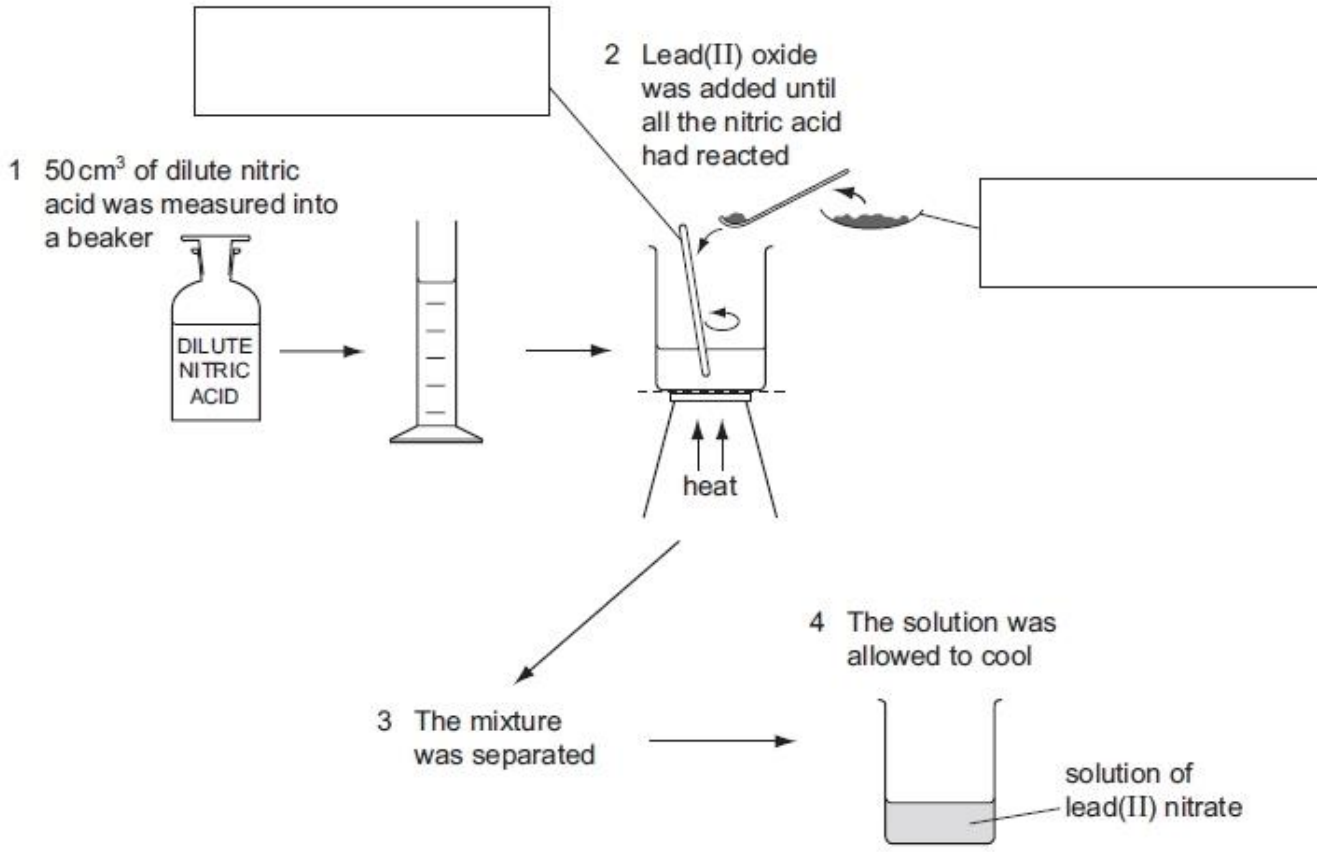
(e) Identify and explain a possible hazard in this experiment.

.....

..... [2]

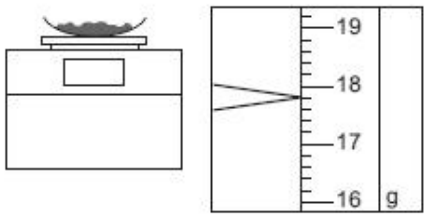
Q# 4/ iGCSE Chem/2014/w/Paper 6/

1 A student reacted dilute nitric acid with lead(II) oxide to prepare lead(II) nitrate. The diagram shows the stages in the method used.

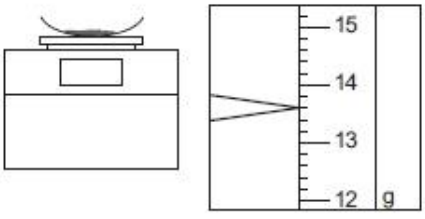


(a) Complete the boxes to identify the pieces of apparatus. [2]

(c) The lead(II) oxide was weighed before and after the additions.



before



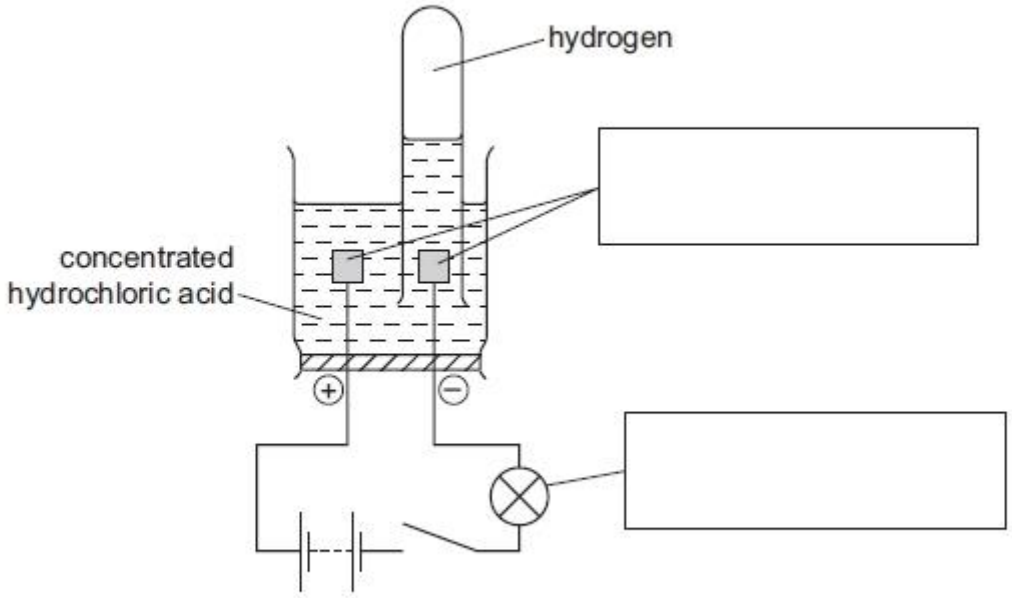
after

Use the balance diagrams to work out the mass of lead(II) oxide added to the dilute nitric acid.

..... [2]

Q# 5/ iGCSE Chem/2013s/Paper 6/

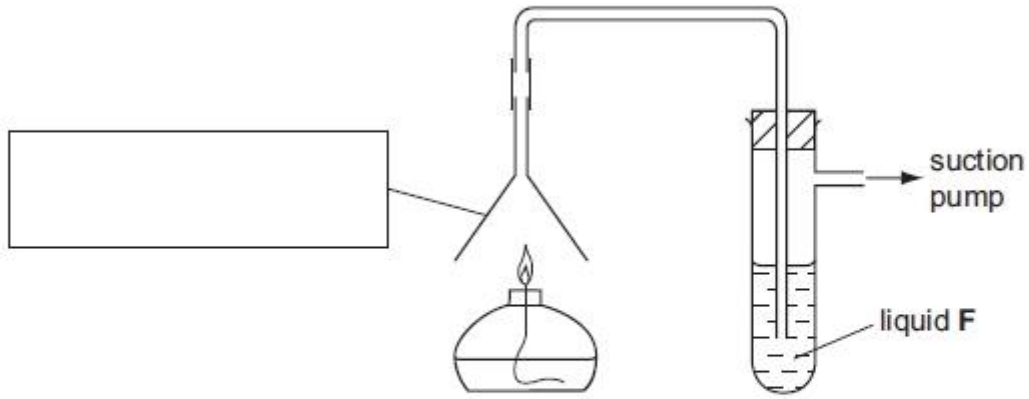
1 Electricity was passed through a solution of concentrated hydrochloric acid using the apparatus shown.



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

Q# 6/ iGCSE Chem/2013/w/Paper 6/

1 A student investigated the products formed when ethanol was burned using the apparatus shown.



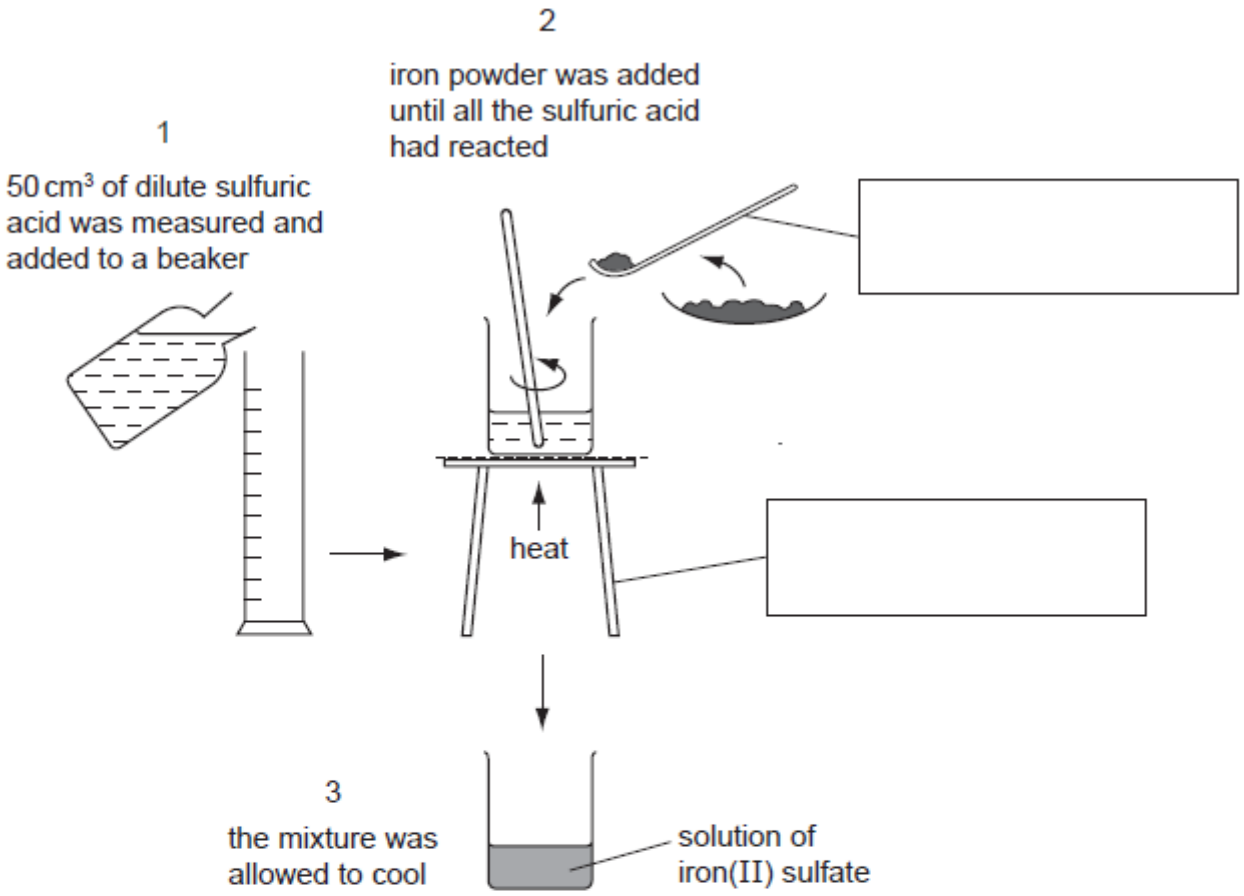
(a) Complete the box to identify the piece of apparatus. [1]

(b) Why is a suction pump used?

..... [1]

Q# 7/ iGCSE Chem/2012s/Paper 6/

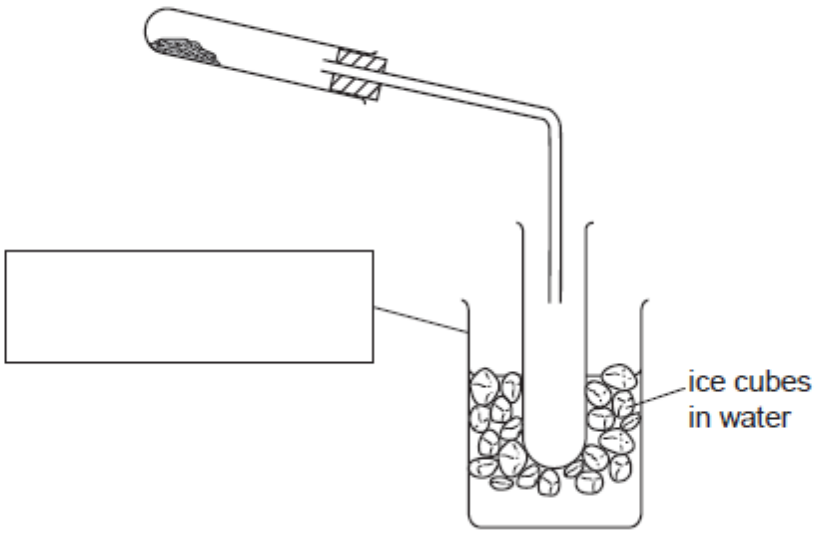
1 A student reacted excess iron powder with sulfuric acid to prepare a solution of iron(II) sulfate.
The diagram shows the procedure followed in three stages.



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

Q# 8/ iGCSE Chem/2011s/Paper 6/

1 A student heated hydrated zinc sulfate crystals, $ZnSO_4.7H_2O$, using the apparatus below to obtain a sample of water.



(a) Complete the box to identify the piece of apparatus labelled. [1]

(b) Use labelled arrows to indicate:

(i) where the heat is applied,

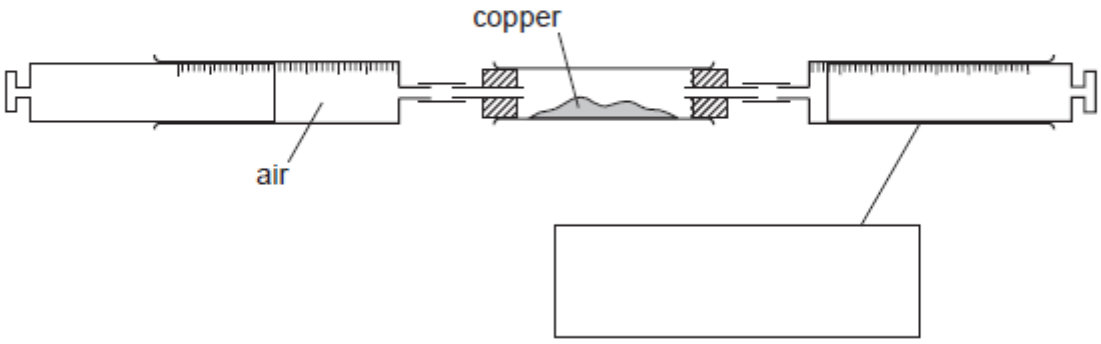
(ii) where the sample of water would collect. [2]

(c) State the purpose of the ice cubes.

..... [1]

Q# 9/ iGCSE Chem/2011/w/Paper 6/

1 A student investigated the reaction of air with copper. 100 cm^3 of air was passed continuously over heated copper using the apparatus below. When the volume remained constant, the apparatus was left to cool and the volume of gas was measured.

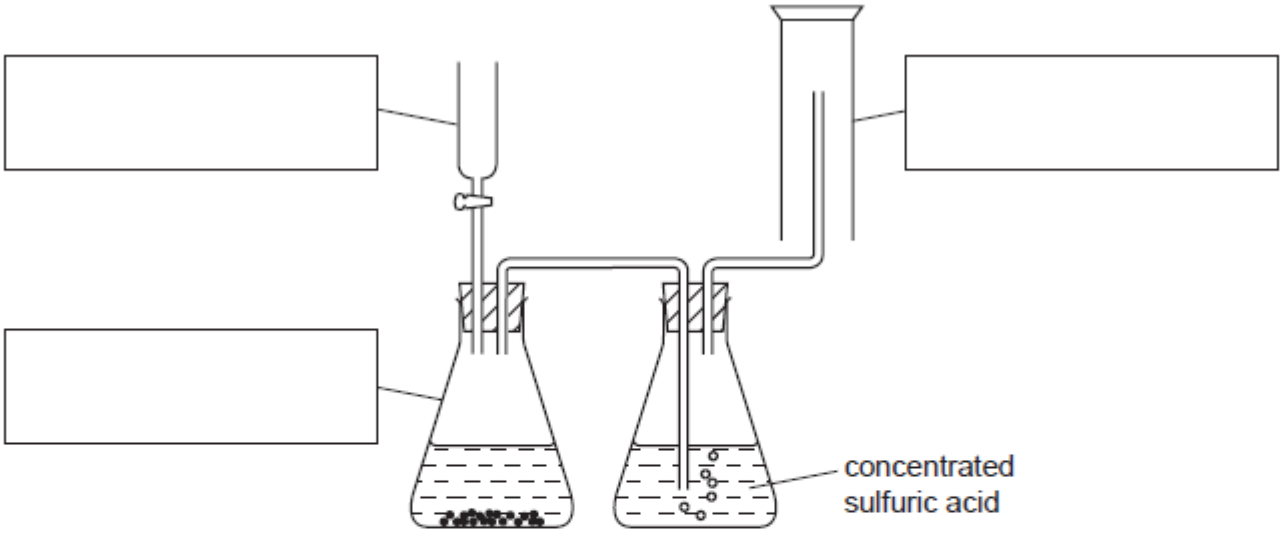


(a) **(i)** Complete the box to show the apparatus labelled. [1]

(ii) Indicate on the diagram, with an arrow, where heat is applied. [1]

Q# 10/ iGCSE Chem/2010s/Paper 6/

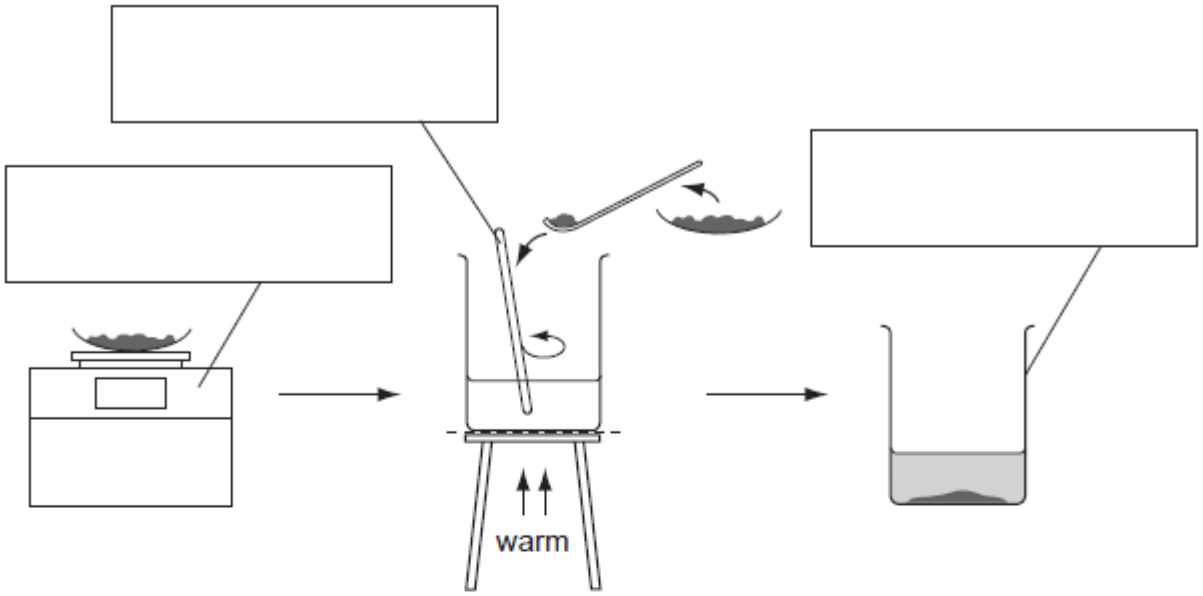
1 The diagram shows the apparatus used to prepare a gas. The gas is more dense than air.



(a) Complete the boxes to name the apparatus. [3]

Q# 11/ iGCSE Chem/2009s/Paper 6/

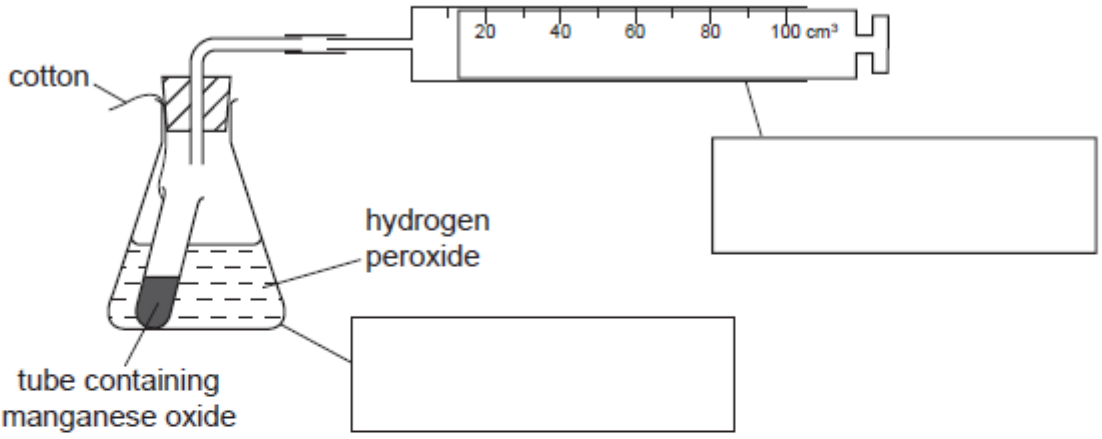
1 A student reacted nitric acid with magnesium oxide to prepare magnesium nitrate. The diagram shows the procedure followed in three stages.



(a) Complete the boxes to identify the pieces of apparatus labelled. [3]

Q# 12/ iGCSE Chem/2009/w/Paper 6/

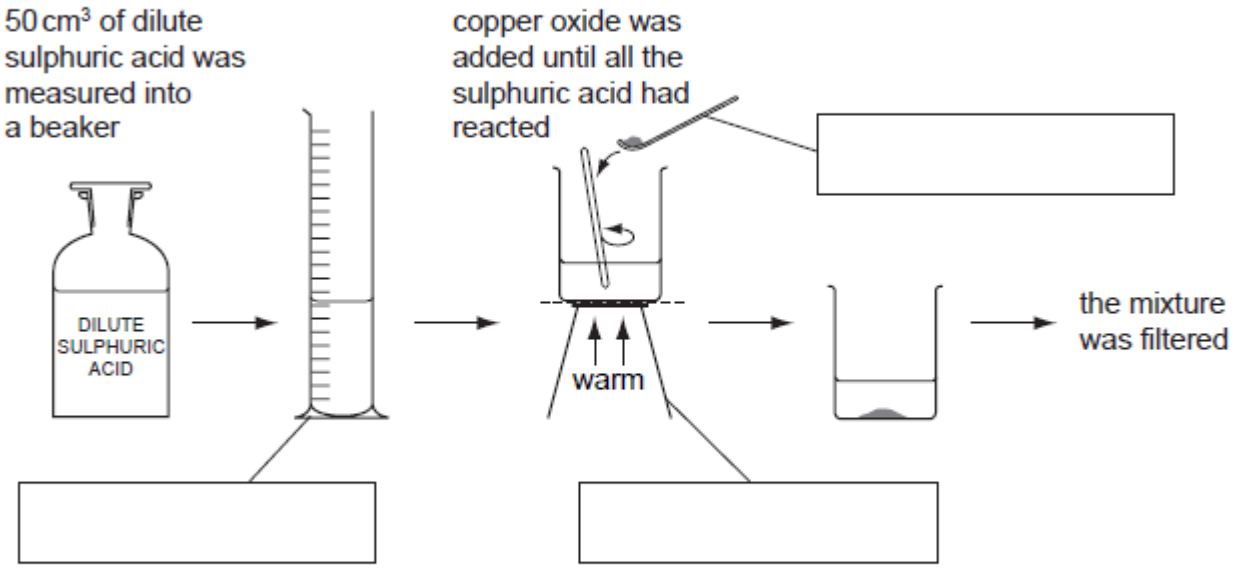
1 The apparatus below was used to make oxygen. The tube of manganese oxide was added to the hydrogen peroxide solution by releasing the cotton.



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

Q# 13/ iGCSE Chem/2008s/Paper 6/

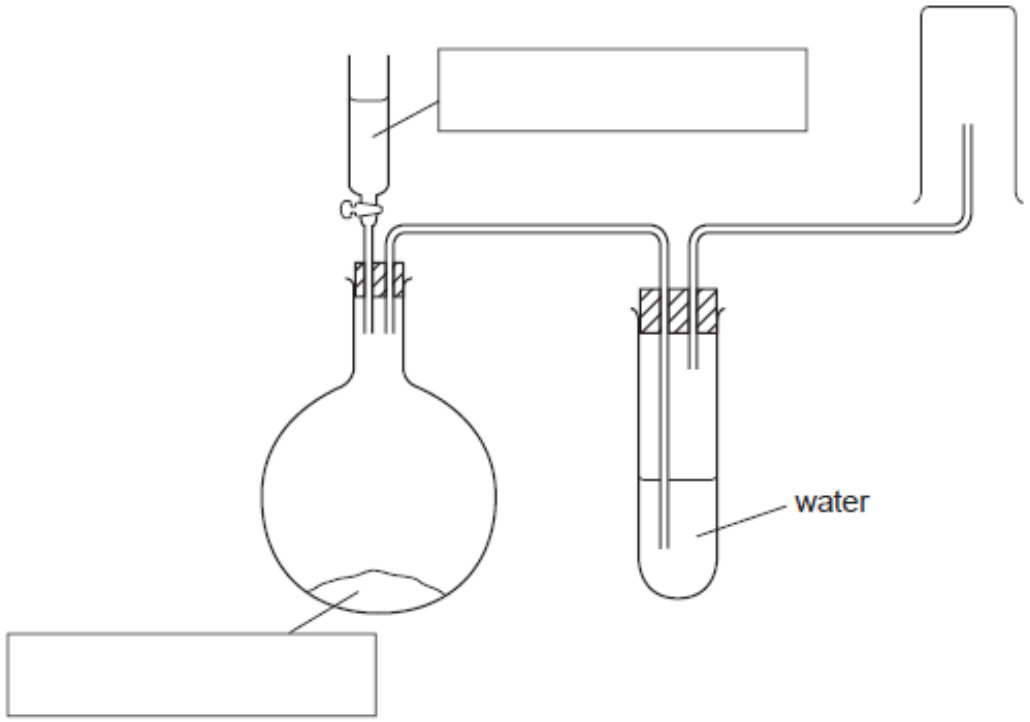
1 A solution of copper sulphate was made by reacting excess copper oxide with dilute sulphuric acid. The diagram shows the method used.



(a) Complete the empty boxes to name the pieces of apparatus. [3]

Q# 14/ iGCSE Chem/2008s/Paper 6/

3 Sulphur dioxide gas is denser than air and soluble in water. A sample of sulphur dioxide can be prepared by adding dilute hydrochloric acid to sodium sulphite and warming the mixture. Study the diagram of the apparatus used.

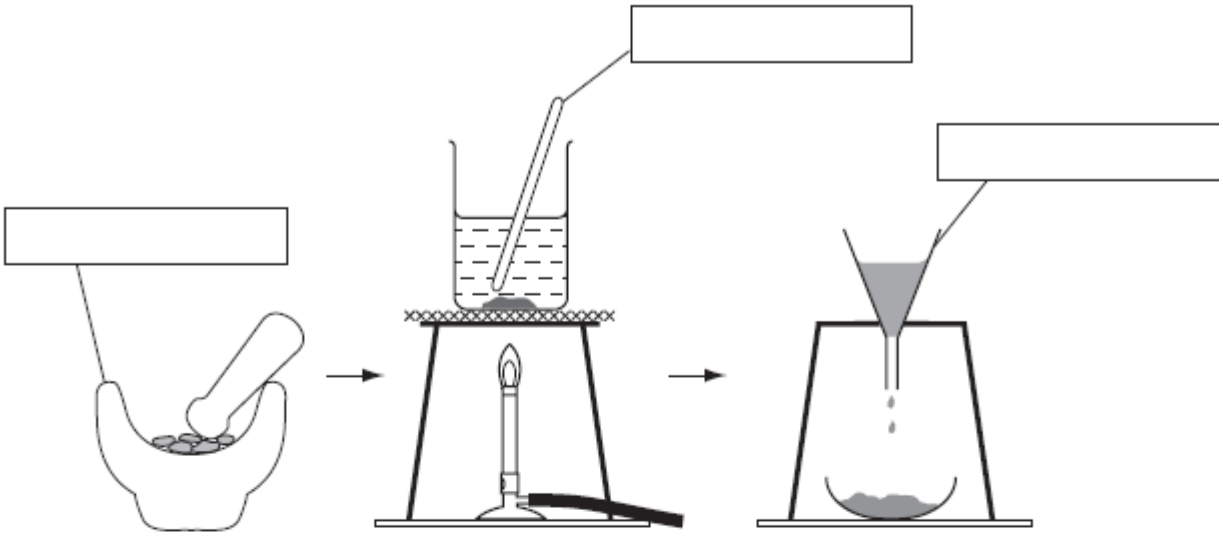


(a) Fill in the boxes to show the chemicals used. [2]

(b) Show by using an arrow, on the diagram, where heat is applied. [1]

Q# 15/ iGCSE Chem/2008/w/Paper 6/

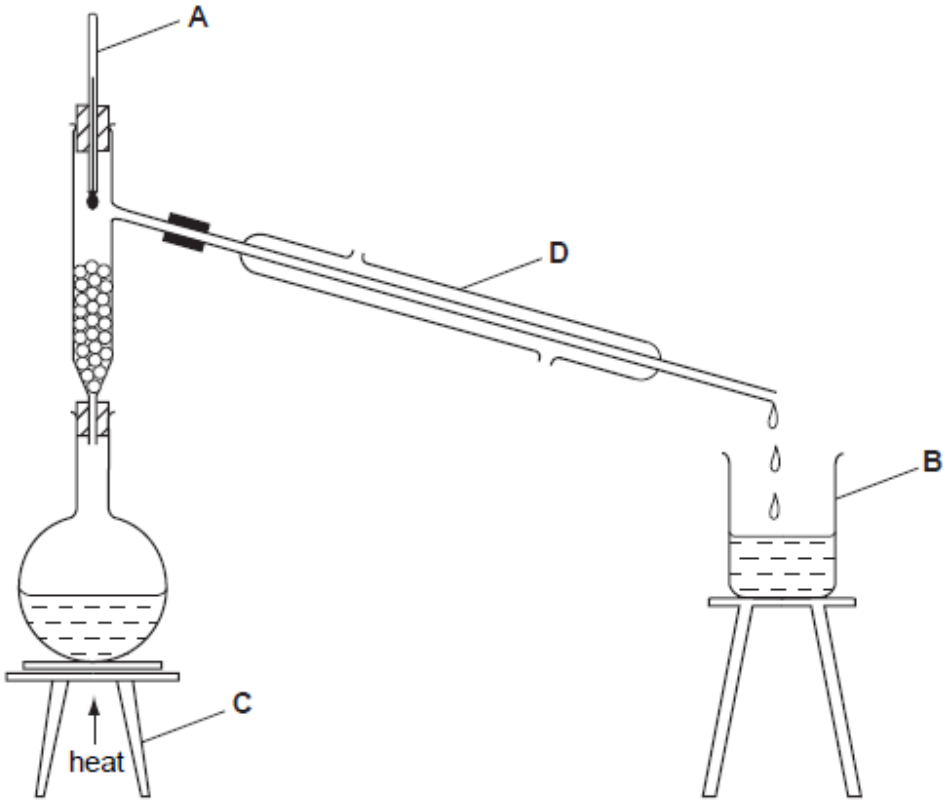
1 The colours present in some blackcurrant sweets can be separated by chromatography. The colours are water-soluble dyes.
The diagrams show how the colours can be extracted from the sweets.



(a) Complete the empty boxes to name the pieces of apparatus. [3]

Q# 16/ iGCSE Chem/2007s/Paper 6/

1 A mixture of ethanol and water can be separated by fractional distillation. The apparatus below can be used to carry out such a separation in the laboratory.



(a) Name each piece of apparatus.

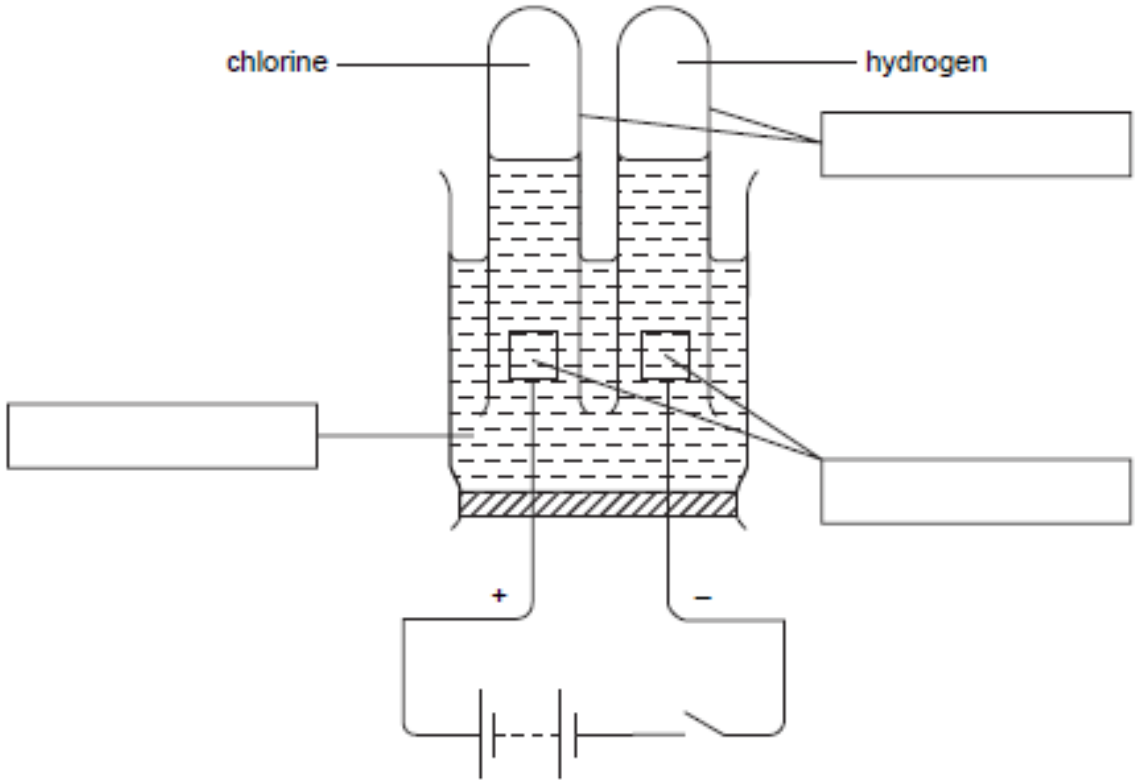
A .....

B .....

C ..... [3]

Q# 17/ iGCSE Chem/2006s/Paper 6/

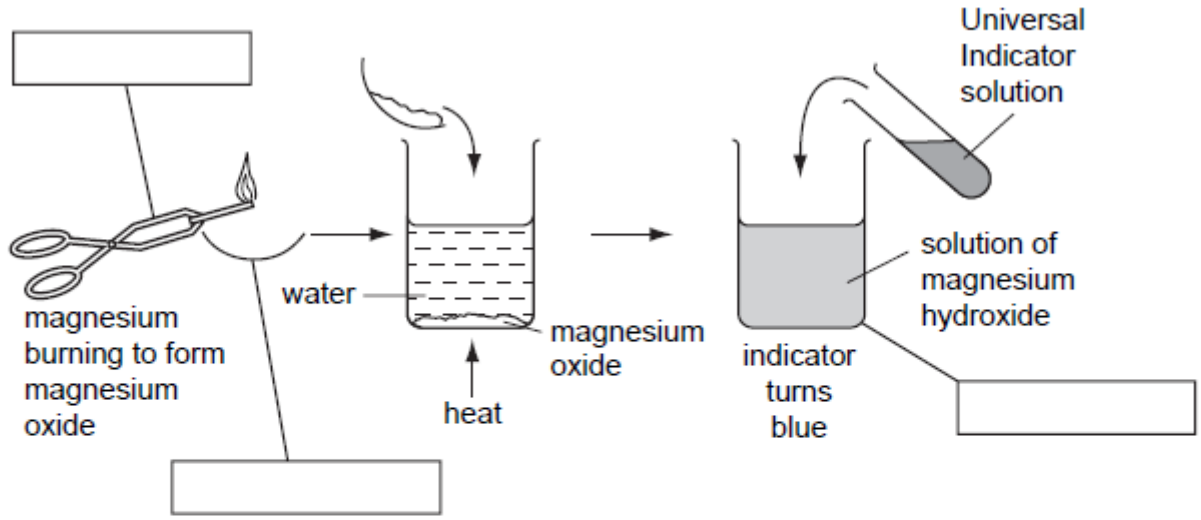
1 The diagram shows the effect of passing electricity through concentrated hydrochloric acid.



(a) Label the diagram by completing the boxes. [3]

Q# 18/ iGCSE Chem/2006/w/Paper 6/

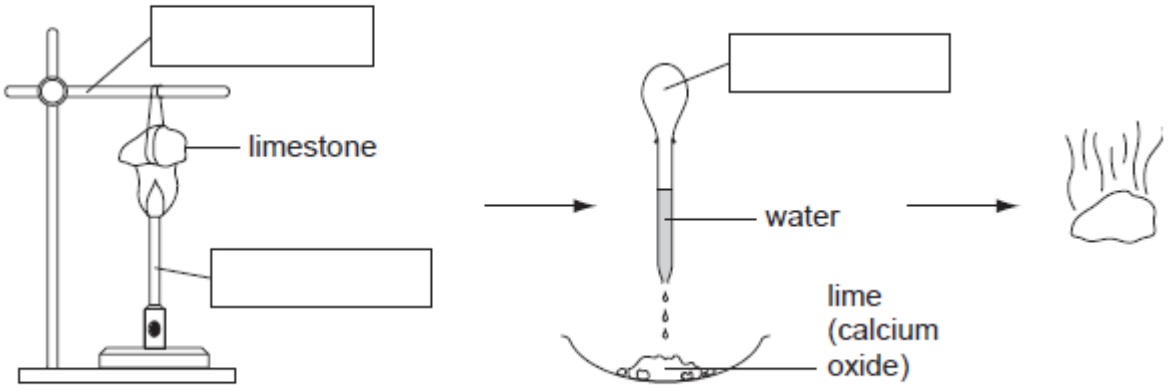
1 The diagram shows the formation of a solution of magnesium hydroxide from magnesium.



(a) Complete the empty boxes to name the pieces of apparatus. [3]

Q# 19/ iGCSE Chem/2005s/Paper 6/

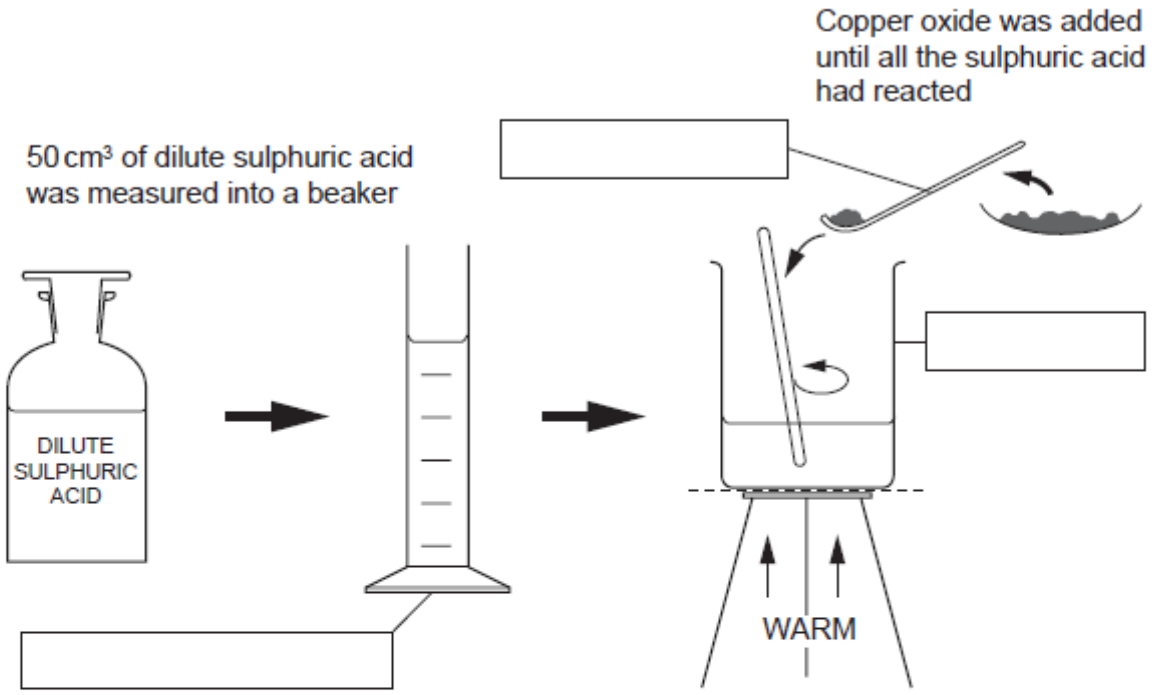
1 A small piece of limestone was heated strongly and left to cool. A few drops of cold water were added. The solid expanded and gave off steam.



(a) Complete the empty boxes to identify the pieces of apparatus labelled. [3]

Q# 20/ iGCSE Chem/2005/w/Paper 6/

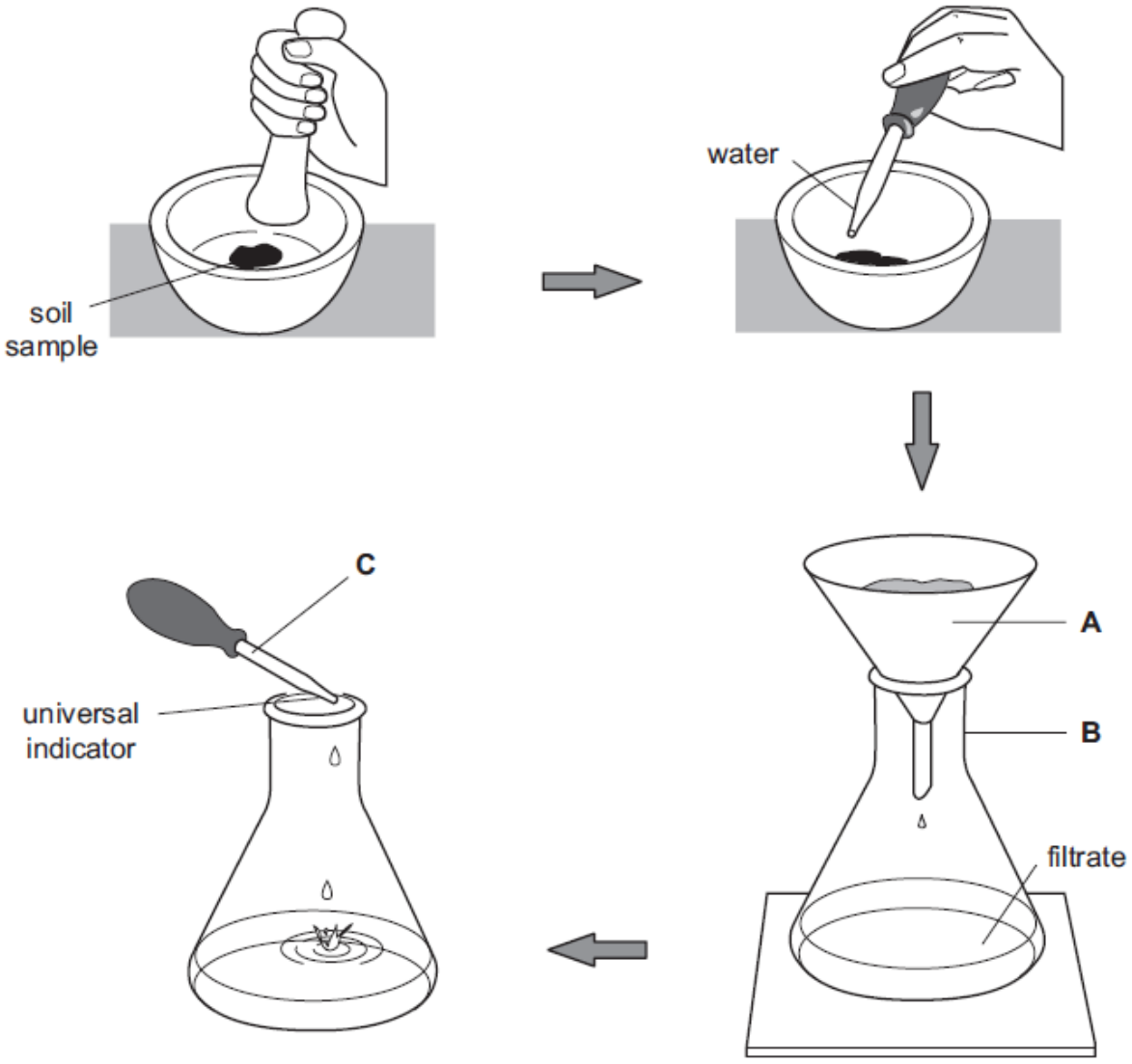
1 A student reacted sulphuric acid with copper(II) oxide. The diagram shows the procedure followed.



(a) Complete the boxes to identify the pieces of apparatus labelled. [3]

Q# 21/ iGCSE Chem/2004s/Paper 6/

1 An experiment was carried out to find the pH of samples of soil from a farmer's field.



(a) Identify the pieces of apparatus labelled

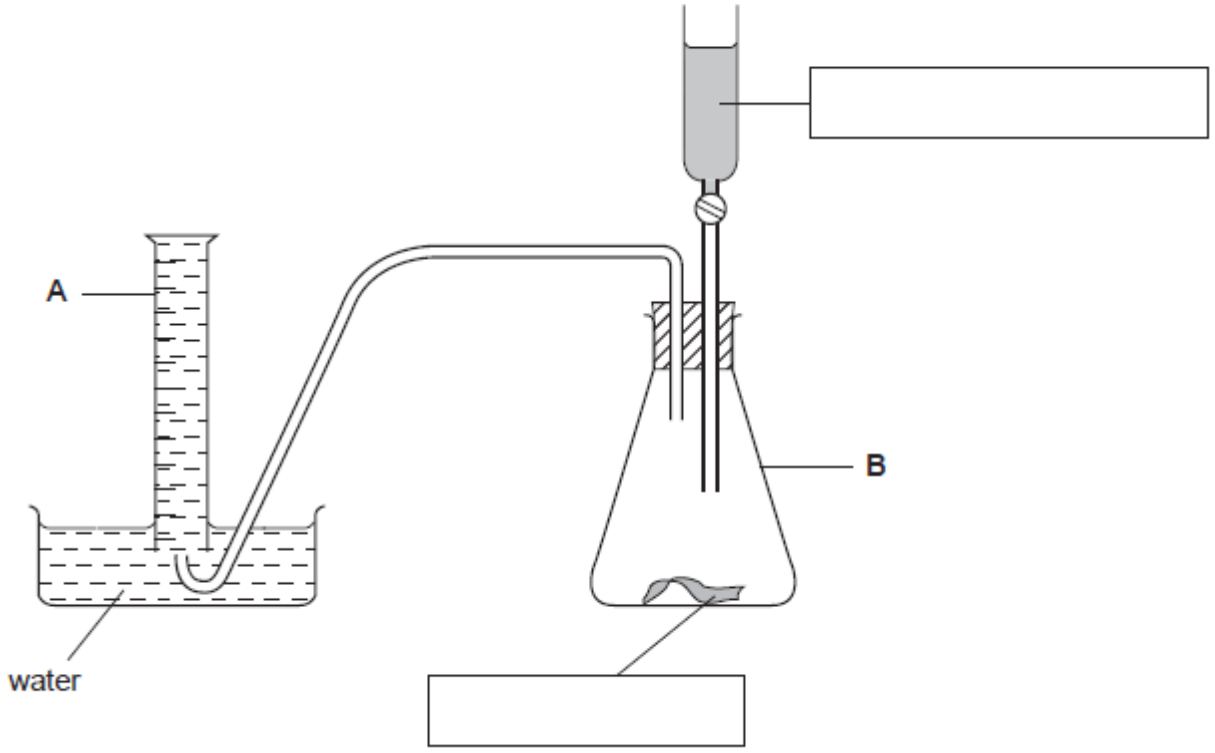
A, ...

B, ...

C. ..... [3]

Q# 23/ iGCSE Chem/2004/w/Paper 6/

1 The apparatus below was used to make hydrogen. Dilute hydrochloric acid was added to zinc.



(a) Identify the pieces of apparatus labelled

A, ...

B. ..... [2]

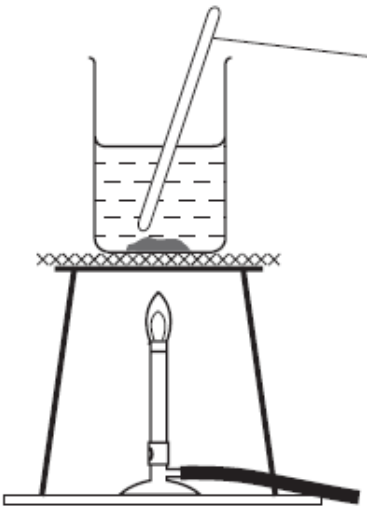
(b) Complete the boxes [1]

Q# 24/ iGCSE Chem/2003s/Paper 6/

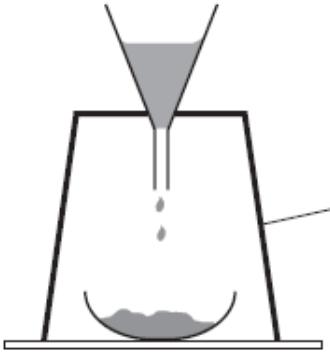
1 Look at the diagrams of common laboratory apparatus.

A

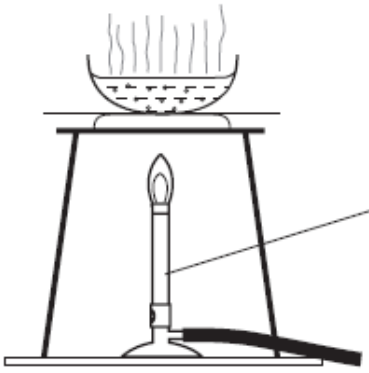
B



C



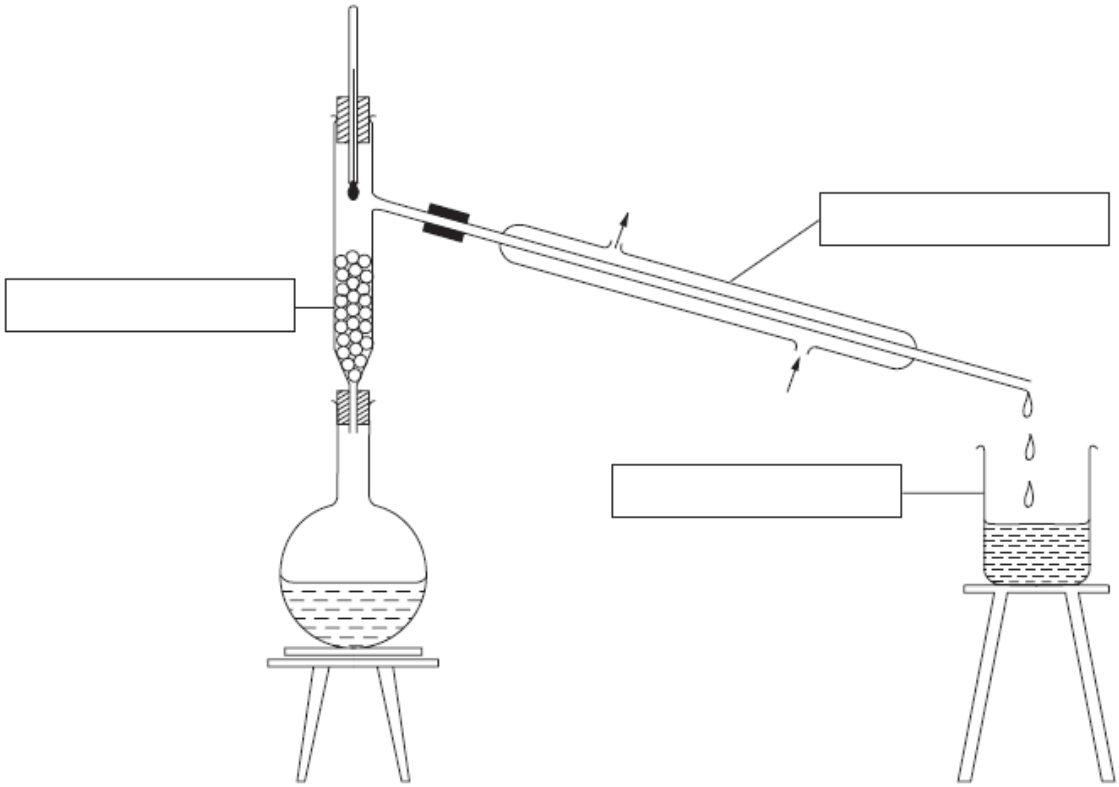
D



(a) Complete the empty boxes to identify the pieces of apparatus labelled. [4]

Q# 25/ iGCSE Chem/2003/w/Paper 6/

1 The apparatus below was used to separate ethanol from water.

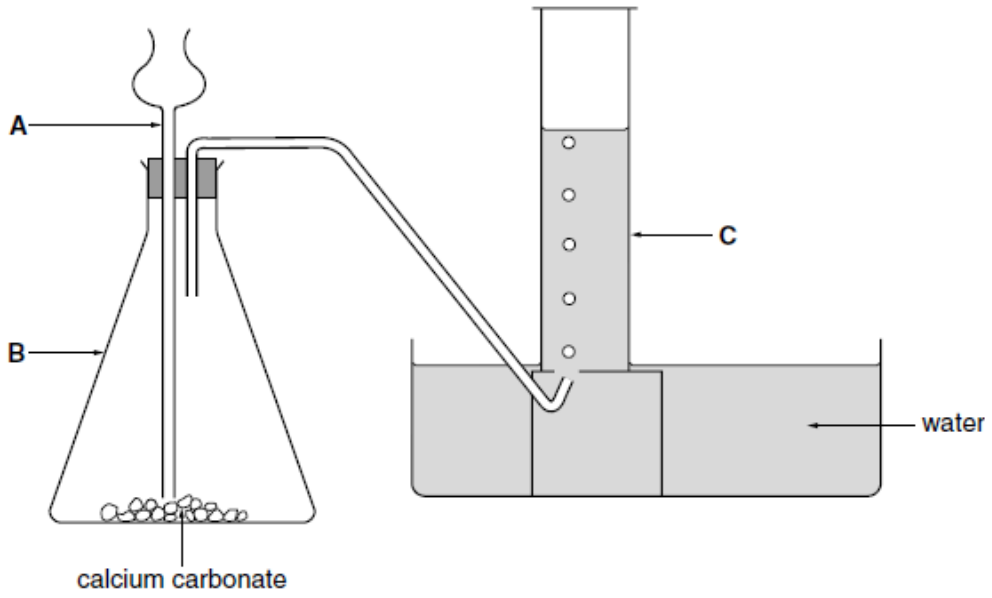


(a) Complete the empty boxes to name the pieces of apparatus. [3]

(b) Indicate by an arrow where heat is applied. [1]

Q# 26/ iGCSE Chem/2002s/Paper 6/

1 The apparatus below was used to make carbon dioxide. Dilute hydrochloric acid was added to calcium carbonate.



(a) Identify the pieces of apparatus labelled:

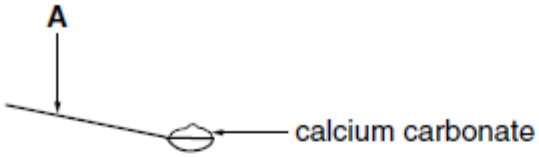
A .....

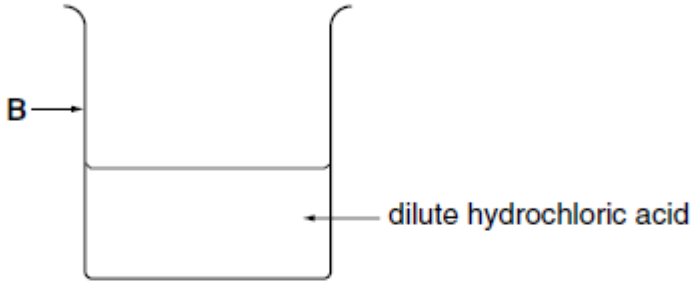
B .....

C .....

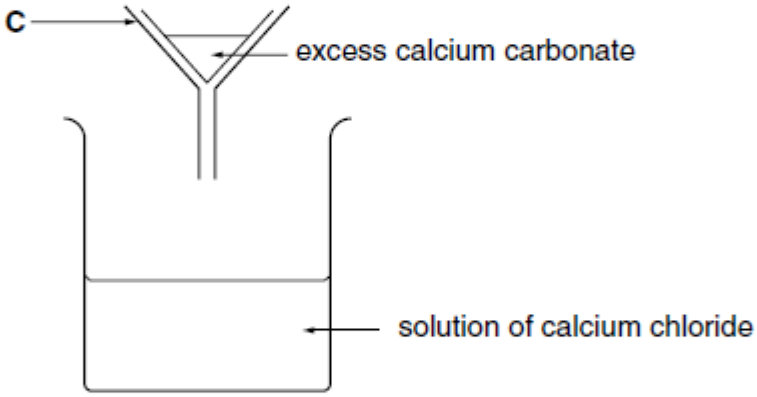
1 A student investigated the neutralisation of dilute hydrochloric acid, using an excess of calcium carbonate.

Step 1 Excess calcium carbonate was added to hydrochloric acid.





Step 2. Excess calcium carbonate was removed from the solution.



Step 3. The solution of calcium chloride was tested with indicator paper.

(a) Identify the pieces of apparatus labelled:

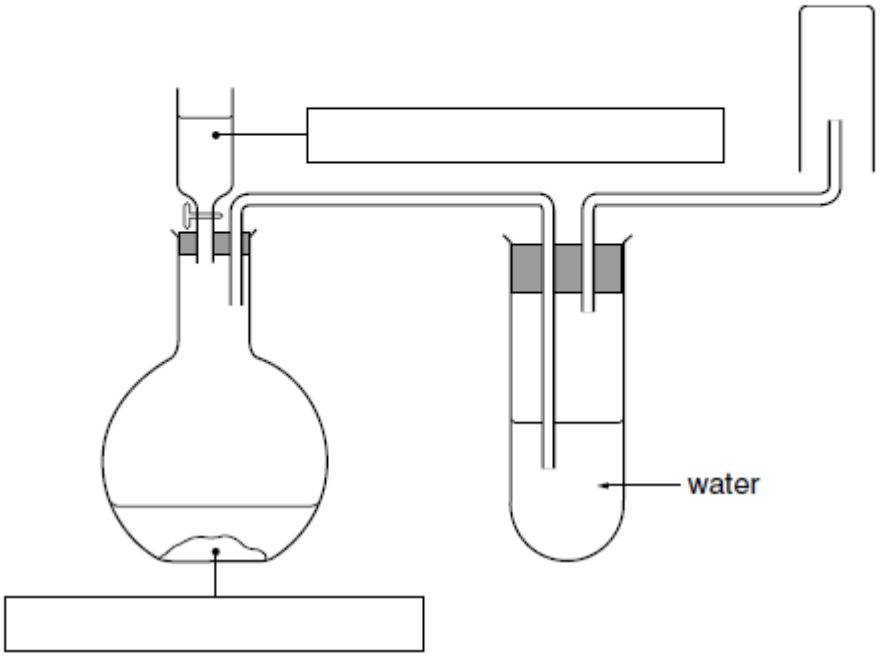
A.....

B.....

C.....[3]

Q# 28/ iGCSE Chem/2002/w/Paper 6/

2 Hydrogen chloride gas is strong-smelling, denser than air and soluble in water. A sample of hydrogen chloride gas can be prepared by adding concentrated sulphuric acid to sodium chloride. Study the diagram of the apparatus used.



(a) Fill in the boxes to show the chemicals used. [2]

(c) State **one** precaution that should be taken when carrying out this experiment.

.....

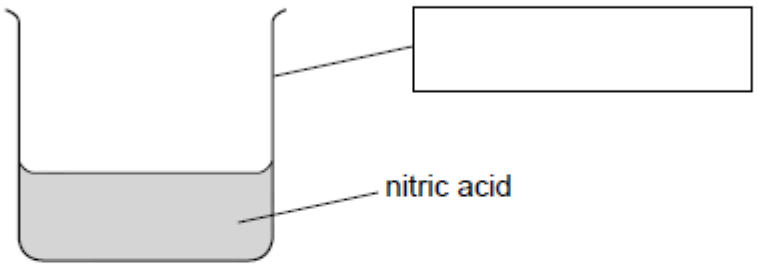
.....[1]

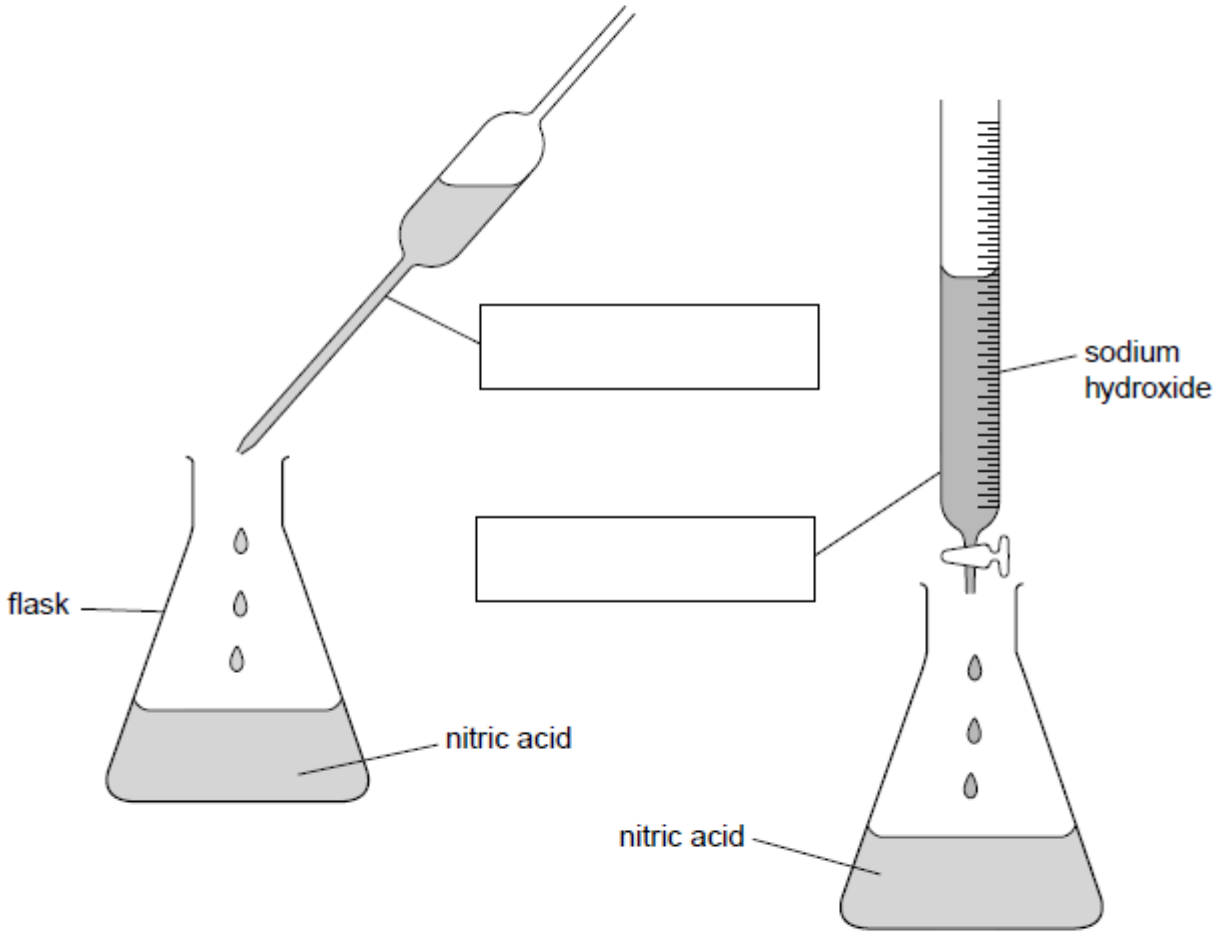
Q# 29/ iGCSE Chem/2001/w/Paper 6/

1 The diagrams show the apparatus used to find the concentration of a nitric acid solution.

25.0 cm^3 of nitric acid was added to a flask.

Sodium hydroxide was added to the acid until the solution was neutral. The volume of the sodium hydroxide was noted.





(a) Complete the boxes to name the apparatus used. [3]

Mark Scheme P6 2001w to 2015w Labelling Lab Equipment 86marks

Q# 1/ iGCSE Chem/2015s/Paper 6/

1(a)(i)	flask;	1	
1(a)(ii)	top arrow water **and** bottom arrow water;	1	

Q# 2/ iGCSE Chem/2015/w/Paper 62/

1(a)	pipette; burette;	1 1	**I:** dropper **R:** teat pipette

Q# 3/ iGCSE Chem/2014s/Paper 6/

1 **(a)** thermometer (1)

condenser (1)
allow condensing tube, condensating tube, etc. [2]

(b) arrows labelled – water (in) and water (out) (1) [1]

(c) fractional (1)

distillation (1) [2]

(d) **(i)** ethanol (1) [1]

(ii) temperature would rise (above 78°C) (1) [1]

(e) alcohols are (in)flammable / catch fire / burn (1)
ignore: explode

Bunsen burner / flame / heat (1) [2]

Q# 4/ iGCSE Chem/2014/w/Paper 6/

1 **(a)** boxes completed to show stirrer / glass rod (1)
watchglass / evaporating dish (1) [2]

(b) to speed up the reaction (1) [1]

(c) correct answer 4.2g (2)
if incorrect, evidence of 17.8 – 13.6 (1) [2]

Q# 5/ iGCSE Chem/2013s/Paper 6/

1 **(a)** electrode(s) / anode / cathode(either) (1)
allow: electrodes labelled wrong way round **not**: carbon/platinum

bulb / lamp / light (1) [2]

Q# 6/ iGCSE Chem/2013/w/Paper 6/

1 **(a)** funnel (1) [1]

(b) to move products through the apparatus / owtte e.g. let the gases go out (1) [1]

Q# 7/ iGCSE Chem/2012s/Paper 6/

1 **(a)** tripod (1) **accept**: stand spatula (1) not: spoon [2]

Q# 8/ iGCSE Chem/2011s/Paper 6/

1 **(a)** beaker (1) [1]

(b) **(i)** (arrow) labelled heat in correct position under shaded crystals (1)

(ii) arrow labelled water in test-tube at or below the level of the ice (1) [2]

(c) to cool/condense the water or steam/owtte (1) [1]

Q# 9/ iGCSE Chem/2011/w/Paper 6/

1 **(a)** **(i)** (gas) syringe (1) [1]

(ii) arrow indication under copper (1) [1]

Q# 10/ iGCSE Chem/2010s/Paper 6/

1 **(a)** flask (1)
tap/separating/dropping funnel (1) not burette
gas jar (1) accept measuring cylinder [3]

Q# 11/ iGCSE Chem/2009s/Paper 6/

1 **(a)** balance (1) stirring/(glass) rod/stirrer (1) not thermometer
beaker (1) [3]

Q# 12/ iGCSE Chem/2009/w/Paper 6/

1 **(a)** (conical) flask (1) (gas) syringe (1) [2]

Q# 13/ iGCSE Chem/2008s/Paper 6/

1 (a) boxes correctly completed

measuring cylinder (1)

spatula (1)

tripod (1) [3]

Q# 14/ iGCSE Chem/2008s/Paper 6/

3 (a) boxes completed correctly to show position of hydrochloric acid (1)
and sodium sulphite (1) [2]

(b) arrow underneath flask (1) [1]

Q# 15/ iGCSE Chem/2008/w/Paper 6/

1 (a) mortar (1)
stirrer/(glass) rod (1) not metal rod or thermometer
funnel (1) not filter or filter paper [3]

Q# 16/ iGCSE Chem/2007s/Paper 6/

1 (a) A thermometer (1)
B beaker (1)
C tripod (1) [3]

Q# 17/ iGCSE Chem/2006s/Paper 6/

1 (a) Boxes completed tubes (1)
hydrochloric acid (1)
electrodes (1) **[3]**

Q# 18/ iGCSE Chem/2006/w/Paper 6/

1 (a) Boxes filled in correctly to show
tongs(1)
watch glass/evaporating basin/dish(1)
beaker(1) **[3]**

Q# 19/ iGCSE Chem/2005s/Paper 6/

1 (a) boxes completed retort/clamp stand (1)
(teat) pipette/dropper (1)
Bunsen burner (1)
[3]

Q# 20/ iGCSE Chem/2005/w/Paper 6/

1 (a) boxes filled in correctly to show:

measuring cylinder (1)

spatula (1)

beaker (1) **[3]**

Q# 21/ iGCSE Chem/2004s/Paper 6/

1	**(a)**	**A**	Funnel	1	
		B	Flask	1	
		C	(Teat) Pipette/dropper	1	**[3]**

Q# 22/ iGCSE Chem/2004s/Paper 6/

1	**(a)**	**A**	Funnel	1	
		B	Flask	1	
		C	(Teat) Pipette/dropper	1	**[3]**

Q# 23/ iGCSE Chem/2004/w/Paper 6/

1 (a) **A** measuring cylinder (1)

B flask (1) **(2)**

(b) boxes completed correctly, zinc and hydrochloric acid (1) **(1)**

Q# 24/ iGCSE Chem/2003s/Paper 6/

1 (a) **A** = mortar (1)
B = stirrer/stirring rod (1) not thermometer
C = tripod (1)
D = Bunsen Burner (1) [4]

Q# 25/ iGCSE Chem/2003/w/Paper 6/

1 (a)	Boxes labelled clockwise: Condenser (1) Beaker (1) Fractionating column (1)	3
(b)	↑ underneath flask (1)	1

Q# 26/ iGCSE Chem/2002s/Paper 6/

1 (a)	A – (thistle) funnel (1) B – (conical) flask (1) C – gas jar (1)	3

Q# 27/ iGCSE Chem/2002/w/Paper 6/

1 (a)	A – spatula only (1) B – beaker only (1) C – funnel (1) not filter	3

Q# 28/ iGCSE Chem/2002/w/Paper 6/

2 (a)	top box – sulphuric acid (1) bottom box – sodium chloride (1)	2
(c)	fume cupboard / goggles (1) or well-ventilated room / gloves	1

Q# 29/ iGCSE Chem/2001/w/Paper 6/

1 (a) Boxes completed to show
beaker (1), pipette (1), burette (1) [3]