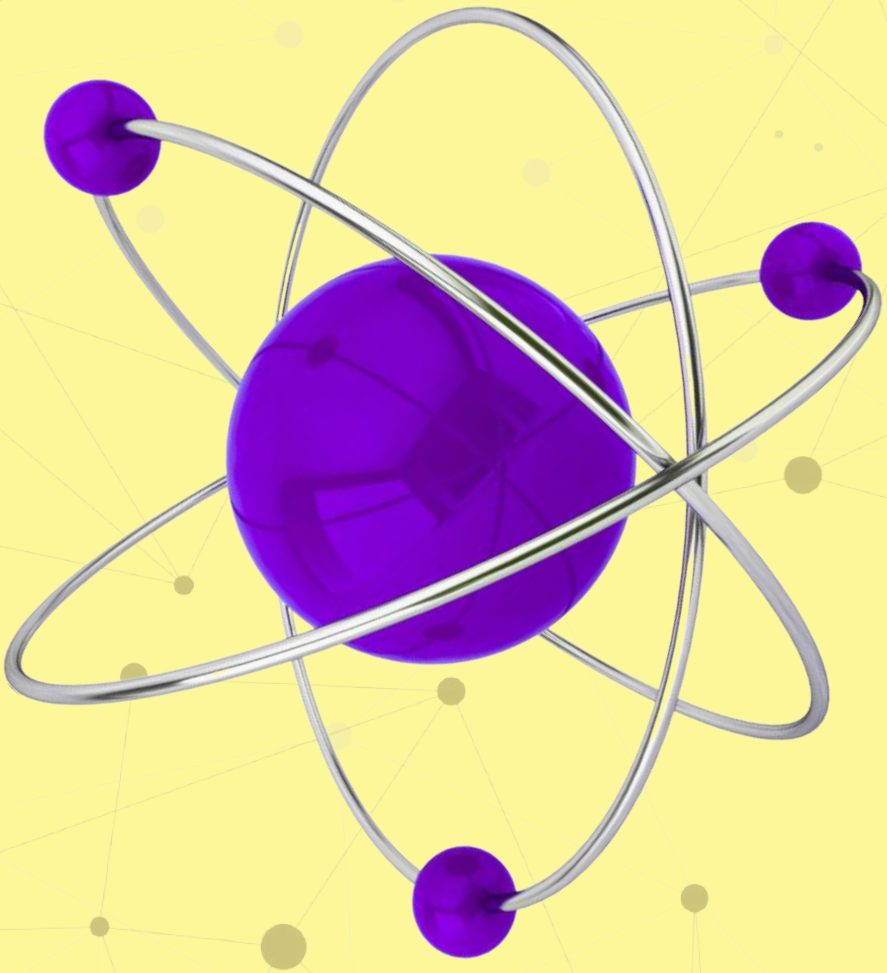
Cambridge IGCSE Chemistry



MOST FREQUENT QUESTIONS

Paper 2

JOIN NOW

click here to get answers and explanations

1 Which gas has the lowest rate of diffusion at room temperature and pressure?

A the gas produced when ammonium chloride is heated with aqueous sodium hydroxide

B the gas which makes up approximately 78% of clean, dry air

C the gas produced when sodium carbonate is added to dilute hydrochloric acid

D the gas produced when zinc is added to dilute sulfuric acid

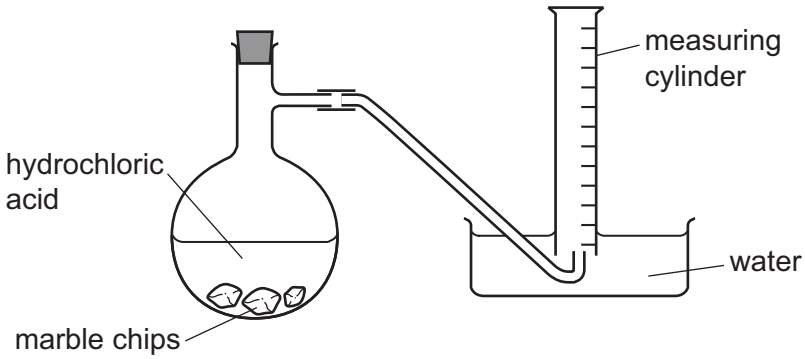
CLICK FOR EXPLANATION

2 A student follows the rate of the reaction between marble chips, $CaCO_3$, and dilute hydrochloric acid.

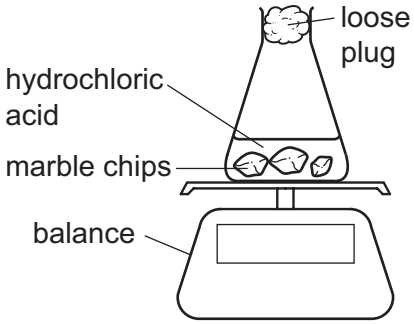
$$CaCO_3 + 2HCl \rightarrow CaCl_2 + CO_2 + H_2O$$

Which diagrams show apparatus that, with a stopwatch, is suitable for this experiment?

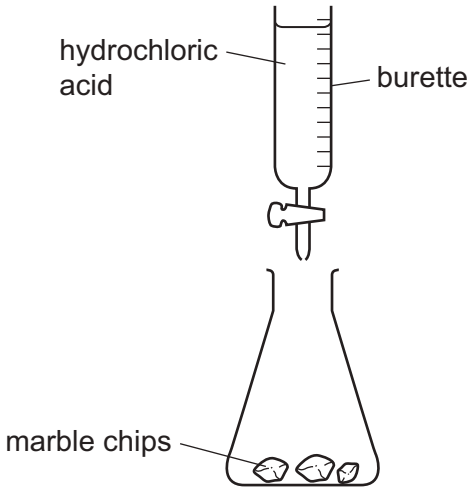
1



2



3



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

3 A mixture of three liquids is separated by fractional distillation.

Which statements are correct?

1 The mixture boils at constant temperature throughout the separation.

2 The temperature at which the mixture boils increases during the separation.

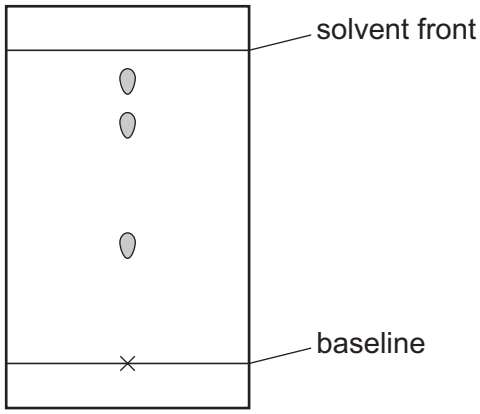
3 The liquid with the highest boiling point is collected first.

4 The liquid with the lowest boiling point is collected first.

A 1 and 3 **B** 1 and 4 **C** 2 and 3 **D** 2 and 4

4 A mixture of four coloured dyes is analysed by chromatography.

The result is shown.



Which change will allow the four dyes to be seen?

A Measure the R_f values of the spots carefully.

B Run the chromatogram for a longer time.

C Run the chromatogram using a different solvent.

D Use a locating agent.

5 A compound X, when heated with an aqueous solution of compound Y, produces a gas that turns red litmus blue.

1 Y could be sodium hydroxide.

2 X is an acid.

3 X could be an ammonium salt.

4 X could be sodium nitrate.

Which statements are correct?

A 1, 2 and 3 **B** 1 and 3 only **C** 3 only **D** 2 and 4

6 An aqueous solution of zinc chloride is tested by adding reagents.

Which observation is correct?

	reagent added to zinc chloride (aq)	observations
A	acidified aqueous barium nitrate	forms a white precipitate
B	aqueous ammonia	forms a white precipitate, soluble in excess of the reagent
C	aqueous sodium hydroxide	forms a white precipitate, insoluble in excess of the reagent
D	powdered copper	forms a grey precipitate

7 The equation for the decomposition of ammonium carbonate, $(NH_4)_2CO_3$, is shown.

$$(NH_4)_2CO_3(s) \rightarrow 2NH_3(g) + CO_2(g) + H_2O(l)$$

[M_r: $(NH_4)_2CO_3$, 96]

The **total** volume of gas produced is 360 cm^3 at r.t.p.

Which mass of ammonium carbonate, $(NH_4)_2CO_3$, is decomposed?

A 0.24 g **B** 0.48 g **C** 0.96 g **D** 1.44 g

8 Which statement about atoms and ions is correct?

A Atoms and ions of the same element must have different numbers of neutrons.

B Isotopes of different elements must have different numbers of neutrons.

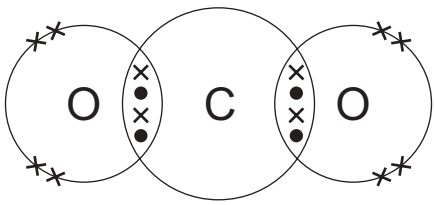
C The charge on a positive ion = (nucleon number – number of neutrons – number of electrons).

D The number of protons and number of neutrons in an atom must be the same.

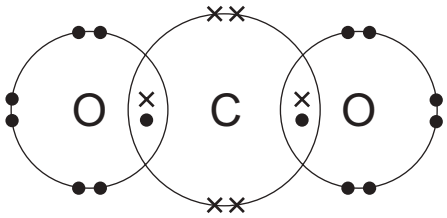
9 The bonding in a molecule of carbon dioxide can be represented by a dot-and-cross diagram.

Which diagram is correct?

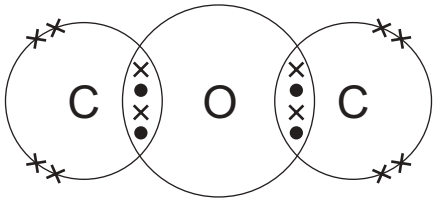
A



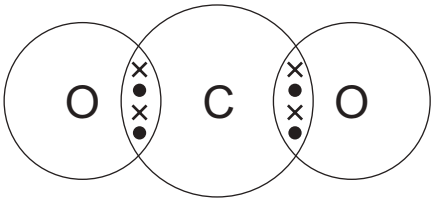
B



C



D



10 Which statement about the structure or bonding of metals is correct?

A A metal lattice consists of negative ions in a ‘sea of electrons’.

B Electrons in a metal move randomly through the lattice.

C Metals are malleable because the ions present are mobile.

D The ions in a metal move when positive and negative electrodes are attached.

11 The relative atomic mass of chlorine is 35.5.

What is the mass of 2.0 mol of chlorine gas?

A 17.75 g **B** 35.5 g **C** 71 g **D** 142 g

12 Methane burns in oxygen.

$$CH_4(g) + 2O_2(g) \rightarrow CO_2(g) + 2H_2O(l)$$

10 cm^3 of methane is reacted with 25 cm^3 of oxygen.

What is the total volume of gas that would be measured after the reaction?

(Assume all volumes of gases are measured at room temperature and pressure.)

A 10 cm^3 **B** 15 cm^3 **C** 30 cm^3 **D** 35 cm^3

13 An aqueous solution is made by dissolving 3.4 g of sodium hydroxide, NaOH, to make 500 cm^3 of solution.

What is the concentration, in mol / dm^3, of this sodium hydroxide solution?

A 0.0068 **B** 0.085 **C** 0.17 **D** 6.8

14 Which statement about electrolysis reactions is correct?

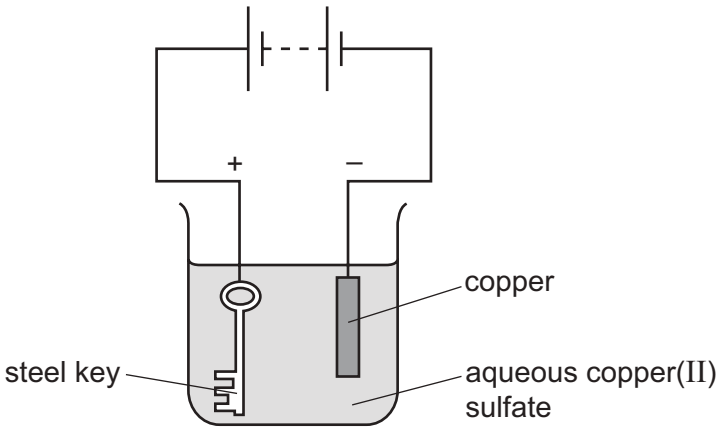
A Bromine is formed at the anode when molten lead bromide is electrolysed.

B Positive ions are discharged at the positive electrode.

C Sodium is formed at the cathode when aqueous sodium chloride is electrolysed.

D Sulfur dioxide is formed as a gas when dilute sulfuric acid is electrolysed.

15 The apparatus shown is set up to plate a steel key with copper.



The key does not get coated with copper.

Which change needs to be made to plate the key?

A Increase the concentration of the aqueous copper(II) sulfate.

B Increase the voltage.

C Replace the solution with dilute sulfuric acid.

D Reverse the electrical connections.

16 Which process is endothermic?

A atoms bonding to form molecules

B the chemical reaction occurring in a fuel cell

C the reaction of carbon dioxide and water to produce glucose and oxygen

D the reaction of methane with oxygen to produce water and carbon dioxide

17 The reaction of hydrogen with chlorine to form gaseous hydrogen chloride is exothermic.

Which statement is correct?

A The total energy of bond formation is greater than the total energy of bond breaking.

B The total energy of bond breaking is greater than the total energy of bond formation.

C The temperature of the reaction mixture falls during the reaction.

D The temperature of the reaction mixture remains unchanged during the reaction.

18 The equation shows the reaction for the manufacture of ammonia.

$$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$$

Which change will decrease the activation energy of the reaction?

A addition of a catalyst

B decrease in temperature

C increase in concentration

D increase in pressure

19 Which statements about oxidation and reduction are correct?

1 Reduction can involve the loss of oxygen.

2 Oxidation can involve the loss of hydrogen.

3 Reduction can involve the loss of electrons.

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

20 Aqueous ammonium nitrite, NH_4NO_2, decomposes when heated.

$$NH_4NO_2(aq) \rightarrow N_2(g) + 2H_2O(l)$$

In this salt, the anion is .....1..... .

The nitrogen atoms in the .....2..... ion are oxidised during the reaction.

Which formulae correctly complete gaps 1 and 2?

	1	2
A	NH_4^+	NH_4^+
B	NH_4^+	NO_2^-
C	NO_2^-	NH_4^+
D	NO_2^-	NO_2^-

21 Elements X and Y react together in a reversible reaction to form XY_2.

$$X + 2Y \rightleftharpoons XY_2$$

1.0 mol of X is mixed with 1.0 mol of Y and the mixture is left to react until an equilibrium position is reached.

Which statements about this reaction are correct?

1 After the equilibrium position has been reached, the reaction stops.

2 At equilibrium there is more than 0.5 mol of X present.

3 At equilibrium there is less than 1.0 mol of XY_2 present.

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

22 Two solutions are prepared.

- Solution P is 0.050 mol / dm^3 hydrochloric acid.
- Solution Q is 0.100 mol / dm^3 butanoic acid.

A 2 cm strip of magnesium ribbon is put into 100 cm^3 of each solution. Fizzing is seen in both solutions but the fizzing is faster in solution P than it is in solution Q.

Which statement helps to explain this observation?

A Magnesium reacts with solution P to form a salt, but does not form a salt with solution Q.

B More particles are dissociated in solution P than are dissociated in solution Q.

C Solution Q contains a stronger acid than solution P.

D The particles are closer together in solution Q than they are in solution P.

23 Which compound can be formed by precipitation?

A $NaCl$ **B** K_2SO_4 **C** $Ca(NO_3)_2$ **D** $PbSO_4$

24 In a neutralisation reaction, which change in particles occurs?

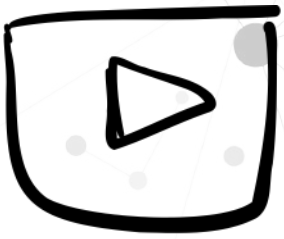
A atoms → molecules

B ions → molecules

C atoms → ions

D ions → atoms

The Complete Course for IGCSE Chemistry



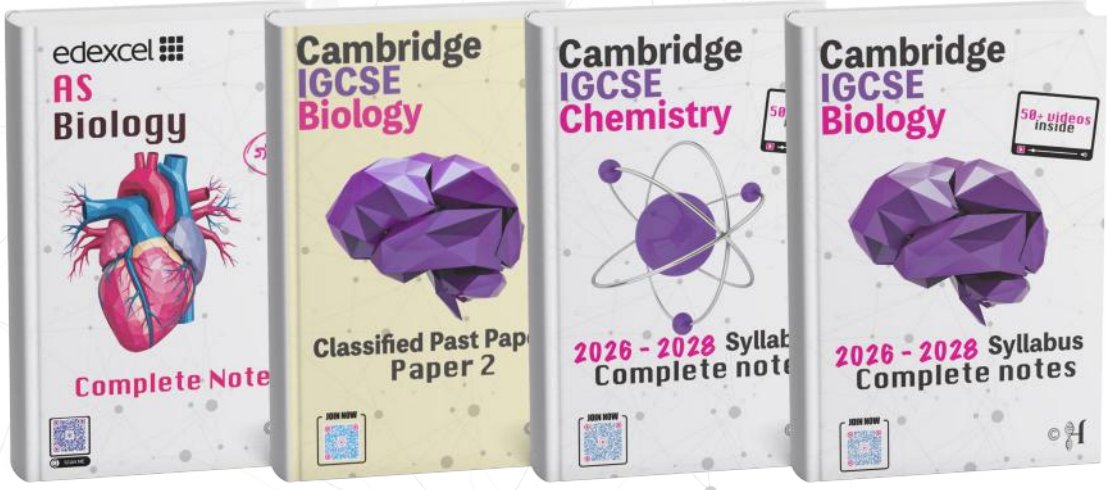
Videos that cover the entire syllabus

Exam-expert solved past papers

Test your knowledge on each topic.

JOIN NOW

Also Available:



CHEM-BIO.INFO

WHATSAPP

51375709

50144115

chem_bio.info