

Surname	Initial(s)
Signature	

Paper Reference(s)

5007 5035

Edexcel GCSE

Science (5007)

Chemistry (5035)

C1a – Topics 5 and 6

Foundation and Higher Tier

Friday 5 March 2010 – Morning

Time: 20 minutes

Materials required for examination

Multiple Choice Answer Sheet
HB pencil, eraser and calculator

Items included with question papers

Nil

Instructions to Candidates

Use an HB pencil. Do not open this booklet until you are told to do so.
Mark your answers on the separate answer sheet.

Foundation tier candidates: answer questions 1 – 24.

Higher tier candidates: answer questions 17 – 40.

All candidates are to answer questions 17 – 24.

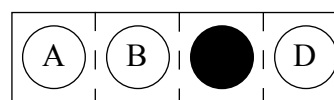
Before the test begins:

Check that the answer sheet is for the correct test and that it contains your candidate details.

How to answer the test:

For each question, choose the right answer, A, B, C or D
and mark it in HB pencil on the answer sheet.

For example, the answer C would be marked as shown.



Mark only **one** answer for each question. If you change your mind about an answer, rub out the first mark **thoroughly**, then mark your new answer.

Do any necessary calculations and rough work in this booklet. You may use a calculator if you wish.

You must not take this booklet or the answer sheet out of the examination room.

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Turn over

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Questions 1 to 16 must be answered by Foundation tier candidates only.
Higher tier candidates start at question 17.

Chlorine

1. Chlorine is a toxic gas.
Which of these hazard symbols is used to show that chlorine is toxic?



A



B



C



D

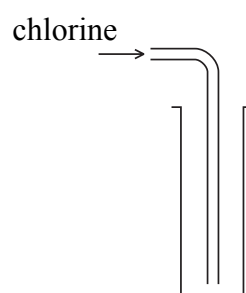
2. Chlorine is used
- A** in fizzy drinks
 - B** to kill bacteria in drinking water
 - C** in fire extinguishers
 - D** to flavour food

3. Chlorine is a halogen.
Which letter shows the position of chlorine in the periodic table?

1		2											3	4	5	6	7	0
																		A
														B				
																	C	
	D																	

4. A test for chlorine is that the gas
- A** relights a glowing splint
 - B** turns limewater cloudy
 - C** burns with a blue flame
 - D** turns moist blue litmus paper red then white

5. Chlorine gas is
- A yellow-green
 - B red-brown
 - C colourless
 - D purple
6. Chlorine and bromine are in the same group of the periodic table. Which of these statements about chlorine and bromine is correct?
- A they are both unreactive
 - B they are the same colour
 - C they have similar chemical properties
 - D they are both gases at room temperature and pressure
7. The symbol for an atom of chlorine is
- A Ch
 - B C
 - C CL
 - D Cl
8. Chlorine can be collected by downward delivery.



This method is used because chlorine gas is

- A insoluble in water
- B toxic
- C less dense than air
- D more dense than air

Making pancakes

John is making a type of pancake.
He uses these ingredients to form a mixture.

flour
milk
baking powder
common salt
sugar
eggs
olive oil

9. When the mixture is cooked it changes into pancakes.
This is because
- A chemical changes have taken place
 - B physical changes have taken place
 - C the milk has boiled
 - D the baking powder has evaporated
10. Common salt is
- A sodium
 - B calcium carbonate
 - C sodium chloride
 - D lead chloride
11. John could replace the sugar with an artificial sweetener.
Artificial means
- A healthier
 - B man-made
 - C difficult to obtain
 - D pure
12. The baking powder contains sodium hydrogencarbonate and cream of tartar.
These substances react to form carbon dioxide.
This means cream of tartar must
- A be acidic
 - B be alkaline
 - C help to make the pancakes sweet
 - D add colour to the pancakes

13. The baking powder in the mixture makes this type of pancake

- A rise
- B set
- C moist
- D spread

Iron and rust

14. Some hand-warmers contain a mixture of substances, including iron powder, in a cloth bag.



Heat is produced by iron powder in this mixture reacting with oxygen from the air.
This type of reaction is

- A neutralisation
- B exothermic
- C thermal decomposition
- D endothermic

15. The reaction of iron with oxygen occurs when iron objects rust.
When iron rusts, a rise in temperature is difficult to detect.
This is because rusting is

- A a slow physical change
- B a fast physical change
- C a slow chemical change
- D a fast chemical change

16. Iron is mainly extracted from

- A limestone
- B steel
- C slag
- D ore

Higher tier candidates start at question 17 and answer questions 17 to 40.
Questions 17 to 24 must be answered by all candidates: Foundation tier and Higher tier

Metals and their salts

17. Zinc can be obtained from zinc oxide by heating the zinc oxide with
- A copper
 - B oxygen
 - C carbon
 - D carbon dioxide
18. Aluminium has to be extracted from aluminium oxide by electrolysis. This shows that
- A aluminium has a very high melting point
 - B aluminium is a reactive metal
 - C aluminium oxide is unstable when heated
 - D aluminium oxide has a very high melting point
19. Magnesium reacts with steam (water) to produce magnesium oxide and hydrogen.
- $$\text{magnesium} + \text{water} \rightarrow \text{magnesium oxide} + \text{hydrogen}$$
- During this reaction the magnesium is
- A dehydrated
 - B hydrated
 - C oxidised
 - D reduced
20. If sodium hydroxide solution is added to a solution of a copper salt, the precipitate produced is
- A brown
 - B white
 - C green
 - D blue
21. A flame test was carried out on a sample of potassium chloride. The colour of the flame should be
- A yellow
 - B blue
 - C red
 - D lilac

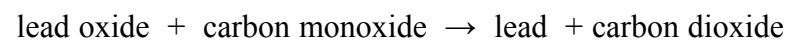
22. The metals lithium, potassium and sodium all react with cold water.
The order of reactivity, from the most reactive to the least reactive, is

- A lithium, potassium, sodium
- B lithium, sodium, potassium
- C potassium, sodium, lithium
- D sodium, potassium, lithium

23. When lithium reacts with water, hydrogen is produced.
The word equation for the reaction is

- A lithium + water → lithium hydroxide + hydrogen
- B lithium + water + oxygen → lithium oxide + hydrogen
- C lithium + water → lithium hydride + hydrogen
- D lithium + water + oxygen → lithium hydroxide + hydrogen

24. At high temperatures, lead oxide reacts with carbon monoxide.
The word equation for the reaction is



In this reaction, the lead oxide undergoes

- A thermal decomposition
- B neutralisation
- C oxidation
- D reduction

TOTAL FOR FOUNDATION TIER PAPER: 24 MARKS

Foundation tier candidates do not answer any more questions after question 24.

**Questions 25 to 40 must be answered by Higher tier candidates only.
Foundation tier candidates do not answer questions 25 to 40.**

Elements in the periodic table

Use the following information to answer questions 25 to 27.

An atom of an element contains 5 protons, 6 neutrons and some electrons.

25. How many electrons will this atom contain?

- A 1
- B 5
- C 6
- D 11

26. What is the atomic number of this element?

- A 1
- B 5
- C 6
- D 11

27. The nucleus of this atom contains

- A protons only
- B neutrons and protons
- C neutrons only
- D electrons and protons

28. Which letter shows the position of a non-metal in period 4 of the periodic table?

1		2												3	4	5	6	7	0
				□															
															A				
																			C
																D			

29. Which of these statements about the periodic table are correct?
- 1 In modern versions of the periodic table the elements are arranged in order of increasing atomic number
 - 2 The periodic table has been used to predict the existence and properties of new elements
- A 1 only
B 2 only
C both 1 and 2
D neither 1 nor 2

Salt preparations

Use the following information to answer questions 30 and 31.

Copper sulphate can be prepared by reacting excess copper oxide with warm dilute sulphuric acid.

30. What should be observed during the reaction?
- A the liquid turning blue
B a white suspension
C bubbles of gas
D a brown solid forming
31. Which of these statements about this preparation are correct?
- 1 The reaction taking place is oxidation
 - 2 Pure copper sulphate can be obtained by evaporation of the mixture of copper oxide and copper sulphate solution
- A 1 only
B 2 only
C both 1 and 2
D neither 1 nor 2
32. Copper oxide reacts with warm dilute hydrochloric acid to form copper chloride. The correct balanced equation for the reaction is
- A $2\text{CuO} + 2\text{HCl} \rightarrow 2\text{CuCl} + \text{H}_2 + \text{O}_2$
B $\text{CuO} + \text{H}_2\text{Cl} \rightarrow \text{CuCl} + \text{H}_2\text{O}$
C $\text{CuO} + 2\text{HCl} \rightarrow \text{CuCl}_2 + \text{H}_2\text{O}$
D $2\text{CuO} + 2\text{HCl} \rightarrow \text{Cu}_2\text{Cl}_2 + \text{H}_2\text{O}$

33. Potassium chlorate is a salt.
Its formula could be
- A KCl
 - B K_2O
 - C K_2CO_3
 - D KClO

Use the following information to answer questions 34 and 35.

Lead chloride is a salt which is insoluble in cold water.

34. The best method of preparing pure lead chloride would be to react
- A excess lead metal with dilute hydrochloric acid
 - B excess lead oxide with dilute hydrochloric acid
 - C lead nitrate solution with dilute hydrochloric acid
 - D excess lead carbonate with dilute hydrochloric acid
35. Lead chloride is obtained mixed with a solution of soluble salts.
A pure, dry sample of lead chloride could be obtained from this mixture by
- A evaporation
 - B filtering and drying
 - C filtering, washing and drying
 - D crystallisation

36. When a salt is heated it decomposes to produce three products.
The equation for the reaction is



Which of these statements about the reaction are correct?

- 1 The salt that decomposes is potassium carbonate
 - 2 The reaction taking place is hydration
- A 1 only
 - B 2 only
 - C both 1 and 2
 - D neither 1 nor 2

Halogens

37. Which of the following describes the colour and state at room temperature and pressure of one of the halogens?

- A purple solid
- B red-brown liquid
- C purple gas
- D yellow-green liquid

38. Which row of the table shows two correct uses for sodium chloride?

	use 1	use 2
A	making chlorine	preserving food
B	preserving food	bleaching paper
C	as a fertiliser	making chlorine
D	bleaching paper	as a fertiliser

39. Which of the following will **not** result in a displacement reaction?

- A fluorine and potassium iodide solution
- B bromine and potassium iodide solution
- C iodine and potassium bromide solution
- D chlorine and potassium bromide solution

40. Which equation correctly represents the reaction between chlorine and potassium iodide solution?

- A $\text{Cl}_2 + \text{KI} \rightarrow \text{KCl}_2 + \text{I}$
- B $\text{Cl}_2 + 2\text{KI} \rightarrow \text{KCl} + 2\text{I}$
- C $\text{Cl} + \text{KI}_2 \rightarrow \text{KCl} + \text{I}_2$
- D $\text{Cl}_2 + 2\text{KI} \rightarrow 2\text{KCl} + \text{I}_2$

TOTAL FOR HIGHER TIER PAPER: 24 MARKS

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