

Surname	Initial(s)
Signature	

Paper Reference(s)

5007 5035

Edexcel GCSE

Science (5007)

Chemistry (5035)

C1a – Topics 5 and 6

Foundation and Higher Tiers

Wednesday 5 March 2008 – 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.

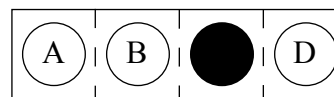
Before the test begins:

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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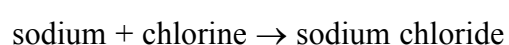
Turn over

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

Two very reactive elements

The elements sodium and chlorine react together to form sodium chloride.



- Sodium chloride is
 - an element
 - a compound
 - a mixture
 - a gas
- Sodium chloride is used
 - as table salt to add to the flavour of food
 - as a fertiliser to make plants grow
 - as a kitchen cleaner to remove grease
 - in water purification to kill bacteria
- To test for sodium in sodium chloride, a clean nichrome wire is used to put sodium chloride into a Bunsen burner flame.
This is
 - an unreliable test
 - neutralisation
 - a flame test
 - dehydration
- When sodium is added to water, it reacts violently and heat is given out.
This reaction is
 - exothermic
 - physical
 - endothermic
 - biological

5. When sodium reacts with water, if it is not free to move around it sometimes produces a flame.



Source: www.webelements.com

The flame is

- A red
 - B black
 - C blue
 - D yellow
6. Hydrogen is produced when sodium reacts with water.
A test for hydrogen is that it
- A bleaches moist litmus paper
 - B ignites with a pop
 - C neutralises an acid
 - D turns universal indicator red
7. The correct symbol for an atom of sodium is
- A na
 - B NA
 - C Na
 - D nA

8. Sodium is an alkali metal.
Which letter shows the position of sodium in the periodic table?

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

9. Sodium and potassium are in the same group of the periodic table.
Sodium and potassium

- A** have similar properties
- B** have atoms which contain the same number of protons as each other
- C** will react with each other
- D** have atoms which do not contain neutrons

10. Chlorine is a toxic gas.
It is used

- A** in cooking
- B** in water treatment
- C** to flavour drinks
- D** in weather balloons

Soda bread

Soda bread can be made using these ingredients

flour
sodium hydrogencarbonate
table salt
buttermilk

11. Buttermilk contains lactic acid which reacts with sodium hydrogencarbonate to form carbon dioxide.
The carbon dioxide

- A** adds flavour to the soda bread
- B** adds colour to the soda bread
- C** stops the soda bread burning
- D** makes the soda bread rise

12. The lactic acid in buttermilk is a natural substance.
Natural means

- A not man-made
- B safe
- C artificial
- D decomposes rapidly

13. Which row of the table shows the changes that occur when soda bread is cooked?

	type of reaction	are new products formed?
A	chemical	no
B	chemical	yes
C	physical	yes
D	physical	no

14. The flour used to make soda bread provides the body with energy.
The main reason is because flour contains

- A additives
- B caustic soda
- C ammonia
- D carbohydrates

15. The soda bread is often cooked in an iron pan.



Source: www.bookguy.com

Iron is a metal that is

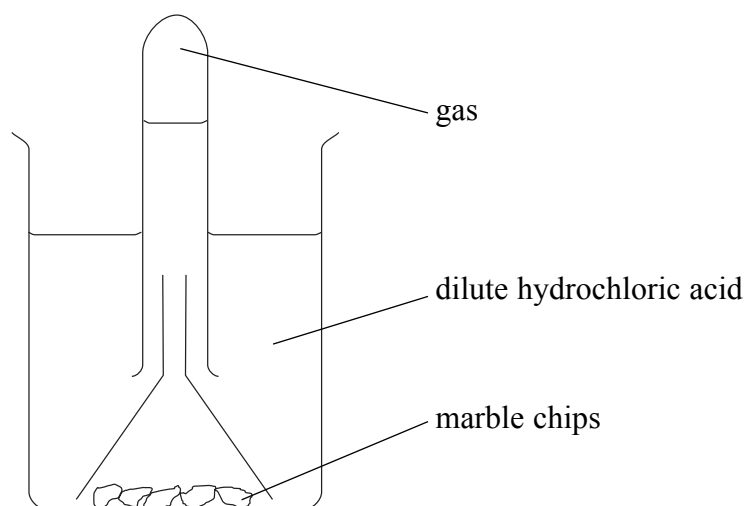
- A found uncombined
- B extracted from its ore using carbon
- C extracted from its ore using copper
- D usually obtained from sea water

- 16.** Iron reacts with dilute hydrochloric acid to form a solution.
Adding sodium hydroxide solution to this solution produces a precipitate.
The colour of the precipitate is
- A** blue
 - B** white
 - C** yellow
 - D** pale green

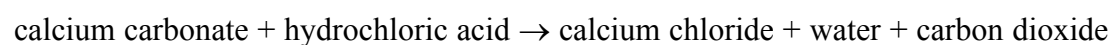
Higher tier candidates start at question 17 and answer questions 17 to 40.
Questions 17 to 24 must be answered by all candidates: Foundation tier and Higher tier.

Preparing calcium chloride

Tara was making the salt calcium chloride.
She added excess marble chips (calcium carbonate) to dilute hydrochloric acid.
She used the apparatus shown to collect a sample of the gas produced.



The word equation for the reaction taking place is



17. The reaction taking place involves
- A dehydration
 - B thermal decomposition
 - C reduction
 - D neutralisation
18. When the reaction stops, how could Tara obtain a sample of pure, solid calcium chloride?
- A add more hydrochloric acid to react with the remaining marble chips and then filter the mixture
 - B add universal indicator solution and then filter the mixture
 - C filter the mixture and then evaporate the solution
 - D evaporate the mixture
19. How can Tara prove that the sample of gas collected is carbon dioxide?
- A add limewater which turns cloudy
 - B add limewater which turns clear
 - C test with a glowing splint which relights
 - D test with a glowing splint which goes out

20. When carbon dioxide is prepared in the laboratory it can be collected by downward delivery. Which row of the table shows the correct properties for carbon dioxide?

	density compared to air	solubility in water
A	greater	insoluble
B	greater	soluble
C	smaller	insoluble
D	smaller	soluble

Halogens

21. Which of these describes the colour and state of one of the halogens at room temperature?

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

22. Roger adds chlorine water to potassium bromide solution. He should see

- A** a pale yellow gas given off
- B** a purple solid forming
- C** an orange colour in the solution
- D** a brown gas given off

23. The formula for potassium bromide is

- A** Pbr
- B** PoBr
- C** KBr
- D** PBr

24. Which row of the table shows two elements with the most similar chemical properties?

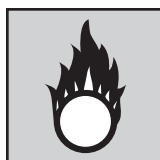
	elements	
A	oxygen	fluorine
B	carbon	iodine
C	bromine	mercury
D	bromine	chlorine

TOTAL FOR FOUNDATION TIER PAPER: 24 MARKS

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

Fertilisers and ammonia

29. Ammonium nitrate is used as a fertiliser.
This hazard symbol is found on bags of ammonium nitrate.



This shows that ammonium nitrate

- A** is flammable
B is explosive
C helps other substances to burn
D puts out fires
30. Ammonium nitrate can be made by reacting ammonia with nitric acid.
The equation for this reaction is
- A** $\text{NH}_3 + \text{HNO}_3 \rightarrow \text{NH}_4\text{NO}_3$
B $2\text{NH}_4 + 2\text{HNO}_3 \rightarrow \text{NH}_4\text{NO}_3 + \text{H}_2$
C $\text{NH}_3 + 2\text{HNO}_3 \rightarrow \text{NH}_4(\text{NO}_3)_2$
D $\text{NH}_4\text{OH} + 2\text{HNO}_3 \rightarrow \text{NH}_4(\text{NO}_3)_2 + \text{H}_2\text{O}$
31. Which of the following statements about ammonia are correct?
- 1 it is a gas which is soluble in water and turns moist red litmus paper blue.
2 it is less dense than air.
- A** 1 only
B 2 only
C both 1 and 2
D neither 1 nor 2
32. Which row of the table shows correct uses for ammonia?

	making nitric acid	making soap
A	yes	no
B	no	yes
C	yes	yes
D	no	no

33. Another compound used in fertilisers is potassium sulphate.
This compound contains the elements
- A potassium, sulphur and carbon
 - B potassium, sulphur and oxygen
 - C potassium, sulphur and hydrogen
 - D potassium and sulphur only

Salts

34. Lead nitrate solution was added to potassium iodide solution.
A yellow precipitate was formed.
The equation for the reaction taking place is
- A $\text{PbNO}_3 + \text{KI} \rightarrow \text{PbI} + \text{KNO}_3$
 - B $2\text{PbNO}_3 + 2\text{KI} \rightarrow 2\text{PbI} + \text{K}(\text{NO}_3)_2$
 - C $\text{Pb}(\text{NO}_3)_2 + 2\text{KI} \rightarrow \text{PbI}_2 + 2\text{KNO}_3$
 - D $\text{Pb}(\text{NO}_3)_3 + 3\text{KI} \rightarrow \text{PbI}_3 + 3\text{KNO}_3$
35. Tests were carried out on samples of potassium iodide.
Which of the following statements are correct?
- 1 A lilac flame was produced in a flame test.
 - 2 When sodium hydroxide solution was added to a solution of potassium iodide, a blue precipitate was formed.
- A 1 only
 - B 2 only
 - C both 1 and 2
 - D neither 1 nor 2
36. Which row of the table shows reagents that could be added to dilute hydrochloric acid to form sodium chloride?

	sodium oxide	sodium hydroxide	sodium carbonate
A	no	yes	yes
B	yes	no	yes
C	yes	yes	no
D	yes	yes	yes

40. Which of these statements about the periodic table are correct?

- 1 the modern periodic table lists all elements in order of increasing mass number.
- 2 gaps were left in the early versions of the periodic table so that known elements can be placed in their correct group.

- A** 1 only
B 2 only
C both 1 and 2
D neither 1 nor 2

TOTAL FOR HIGHER TIER PAPER: 24 MARKS

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