

Surname	Initial(s)
Signature	

Paper Reference(s)

**5007 5035**

# Edexcel GCSE

**Science (5007)**

**Chemistry (5035)**

C1a – Topics 5 and 6

**Foundation and Higher Tiers**

Friday 19 June 2009 – 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.

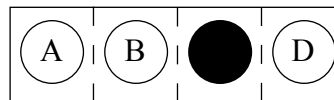
**Before the test begins:**

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

### Sodium and its compounds

1. Sodium is an element.  
The position of sodium in the periodic table is shown by X

1	2																			3	4	5	6	7	0
X																									

Sodium is

- A** a reactive non-metal  
**B** an unreactive non-metal  
**C** an unreactive transition metal  
**D** a reactive alkali metal
2. Sodium reacts with chlorine to form sodium chloride.  
Sodium chloride is
- A** a mixture  
**B** a metallic element  
**C** a non-metallic element  
**D** a compound
3. Sodium chloride is used as
- A** table salt  
**B** vinegar  
**C** a bleach  
**D** a fertiliser

4. This hazard symbol is used on bottles of sodium hydroxide.



It shows that sodium hydroxide is

- A corrosive
  - B toxic
  - C flammable
  - D explosive
5. Another name for sodium hydroxide is
- A ammonia
  - B caustic soda
  - C ethanoic acid
  - D citric acid
6. Baking powder contains sodium hydrogencarbonate.  
Baking powder is used in cake mixtures to
- A make the cake brown
  - B sweeten the cake
  - C stop the cake from sticking to the tin
  - D make the cake rise during cooking
7. When sodium hydrogencarbonate is heated it forms carbon dioxide.  
The word equation for the reaction taking place is

sodium hydrogencarbonate  $\rightarrow$  sodium carbonate + carbon dioxide + water

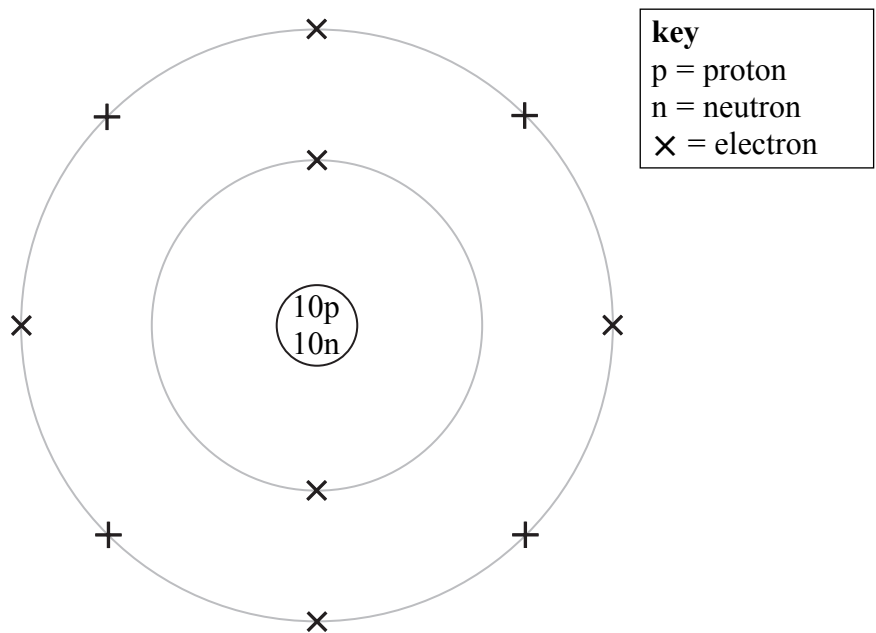
This reaction is

- A combustion
- B thermal decomposition
- C neutralisation
- D hydration

## Unreactive elements

8. Argon is very unreactive.  
It is
- A a noble gas
  - B a halogen
  - C an alkali metal
  - D a transition metal
9. The correct symbol for an atom of argon is
- A A
  - B Ag
  - C Ar
  - D AR
10. Helium and neon are in the same group of the periodic table.  
Helium and neon
- A burn in air
  - B react with water
  - C are inert
  - D form stable compounds

11. The diagram shows the particles in an atom of neon.



The atomic number of neon is

- A 8
- B 10
- C 20
- D 30

12. Helium is another unreactive substance.  
It is used to fill weather balloons and airships.  
Helium is used for this purpose because

- A it is a liquid at room temperature
- B it is an element
- C it is less dense than air
- D its molecules are large

## Metals

13. Some gold jewellery was found in a tomb in Egypt.  
The jewellery was in good condition after thousands of years.  
It had remained in good condition because pure gold

- A** is very hard  
**B** has a low density  
**C** is very unreactive  
**D** can be recognised by its colour

14. Gold is a transition metal.  
Which letter shows the position of gold in the periodic table?

	1	2											3	4	5	6	7	0			
				<div style="border: 1px solid black; width: 30px; height: 20px; display: inline-block; margin: 0 auto;">A</div>																	
																		<b>B</b>			
<b>C</b>																					
										<b>D</b>											

15. Gold is obtained

- A** by extracting it from its ore using electrolysis  
**B** as gold metal from the ground  
**C** by extracting it from its ore using carbon  
**D** by oxidation of its ore

16. Zinc is another metal.  
Tony added a few drops of sodium hydroxide solution to a solution of a zinc salt.  
He should have seen

- A** a blue precipitate  
**B** bubbles of gas  
**C** no visible change  
**D** a white precipitate

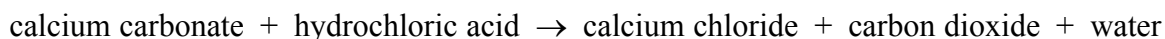
**Higher tier candidates start at question 17 and answer questions 17 to 40.  
Questions 17 to 24 must be answered by all candidates: Foundation tier and Higher tier.**

### **Preparing calcium chloride**

*Use the following information to answer questions 17 to 19.*

Excess calcium carbonate reacts with dilute hydrochloric acid to form a solution of the salt calcium chloride.

The word equation for the reaction is



17. What will be observed during this reaction?
- A a very bad smell
  - B a change in colour
  - C bubbles of gas
  - D a solid precipitate forming
18. During this reaction the dilute hydrochloric acid is
- A evaporated
  - B thermally decomposed
  - C reduced
  - D neutralised
19. Heat is given out during the reaction.  
This shows that the reaction
- A is exothermic
  - B is endothermic
  - C could be exothermic or endothermic
  - D is neither exothermic nor endothermic
20. The test for carbon dioxide is that it
- A relights a glowing splint
  - B turns universal indicator blue
  - C turns limewater milky
  - D burns when a lighted splint is applied

21. If calcium chloride is tested using a flame test, it produces an orange-red colour in the flame. The colour is caused by the
- A wire used
  - B calcium in the compound
  - C chlorine in the compound
  - D hydrochloric acid used
22. Anhydrous calcium chloride can be used to dry gases. The water is removed when the anhydrous calcium chloride reacts with it. This reaction is an example of
- A neutralisation
  - B reduction
  - C hydration
  - D hydrogenation
23. The formula of hydrochloric acid is
- A HCL
  - B Hcl
  - C HCl<sub>2</sub>
  - D HCl
24. Potassium bromide is a soluble salt. Which of these processes must be used to form a sample of solid potassium bromide from a solution of the salt?
- A hydration
  - B evaporation
  - C condensation
  - D filtration

**TOTAL FOR FOUNDATION TIER PAPER: 24 MARKS**

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

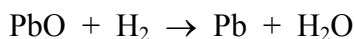


**Questions 25 to 40 must be answered by Higher tier candidates only.  
Foundation tier candidates do not answer questions 25 to 40.**

### Lead oxide

*Use the following information to answer questions 25 and 26.*

Lead oxide can be changed into lead by passing hydrogen over heated lead oxide.  
The equation for the reaction is



**25.** During this reaction the lead oxide is

- A** hydrated
- B** dehydrated
- C** oxidised
- D** reduced

**26.** During this reaction the hydrogen is

- A** hydrated
- B** dehydrated
- C** oxidised
- D** reduced

**27.** Lead can also be obtained by heating lead oxide with

- A** oxygen
- B** carbon
- C** nitrogen
- D** copper

### The halogens

**28.** Bromine is a halogen in period 4 of the periodic table.

Which letter shows the position of bromine in the periodic table?

	1	2															3	4	5	6	7	0	

29. An atom of bromine contains protons, neutrons and electrons.  
Which row of the table shows the relative charges on these particles?

	proton	neutron	electron
A	+1	-1	0
B	+1	0	-1
C	-1	0	+1
D	+1	+1	0

30. Which of the following statements about the halogens are correct?

- 1 their reactivity decreases as their atomic numbers increase
- 2 their boiling points increase as their atomic numbers increase

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

31. Which row of the table correctly describes bromine, chlorine and iodine at room temperature?

	bromine	chlorine	iodine
A	red-brown liquid	yellow-green gas	purple gas
B	yellow-green gas	red-brown liquid	grey solid
C	red-brown liquid	yellow-green gas	grey solid
D	red-brown gas	yellow-green liquid	purple gas

32. Halogens were added to solutions of potassium halides.  
In which of the following mixtures will the substances **not** react?

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

### Group 1 of the periodic table

33. Which of the following statements about group 1 elements are correct?
- 1 their reactivities increase as their atomic numbers increase
  - 2 all of the elements in group 1 react with cold water
- A 1 only  
B 2 only  
C both 1 and 2  
D neither 1 nor 2
34. A compound of sodium has the formula  $\text{Na}_2\text{S}_2\text{O}_3$ .  
The most likely name for this compound is
- A sodium thiosulphate  
B sodium sulphur oxide  
C sodium sulphide  
D sodium sulphioxide
35. Potassium reacts with water.  
The balanced equation for this reaction is
- A  $\text{K} + \text{H}_2\text{O} \rightarrow \text{KOH} + \text{H}$   
B  $2\text{K} + 2\text{H}_2\text{O} \rightarrow 2\text{KOH} + \text{H}_2$   
C  $\text{K} + 2\text{H}_2\text{O} \rightarrow \text{K}(\text{OH})_2 + \text{H}_2$   
D  $2\text{K} + \text{H}_2\text{O} \rightarrow \text{K}_2\text{OH} + \text{H}$
36. An atom of sodium contains  
11 electrons  
12 neutrons  
11 protons
- Which of these statements is correct?
- A the atomic number of sodium is 23  
B all group 1 elements have atoms containing 11 electrons  
C all atoms of sodium contain 11 protons  
D the atomic number of sodium is 12

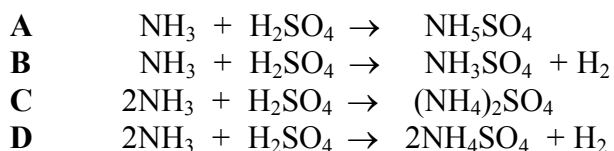
37. A teacher was attempting to make potassium chloride. He had available potassium, potassium hydroxide solution and potassium carbonate solution. Which of these could he safely add to dilute hydrochloric acid to produce a solution of potassium chloride?
- A** potassium and potassium carbonate solution only  
**B** potassium hydroxide solution and potassium carbonate solution only  
**C** potassium carbonate solution only  
**D** potassium hydroxide solution only

### Ammonia

38. Ammonia gas can be collected by upward delivery. It cannot be collected over water. Which row of the table shows the properties of ammonia suggested by this information?

	density compared to air	solubility in water
<b>A</b>	denser	soluble
<b>B</b>	less dense	insoluble
<b>C</b>	denser	insoluble
<b>D</b>	less dense	soluble

39. Ammonia reacts with sulphuric acid to form ammonium sulphate. The equation for this reaction is



40. Which of the following statements about ammonia are correct?

- 1 ammonia is used in the manufacture of nitric acid  
 2 ammonia turns moist blue litmus paper red

- 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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**END**