

Surname	Initial(s)
Signature	

Paper Reference(s)

5007

Edexcel GCSE

Science

Chemistry C1a

Topic 5: Patterns in Properties

Topic 6: Making Changes

Foundation and Higher Tiers

Monday 25 June 2007 – 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.

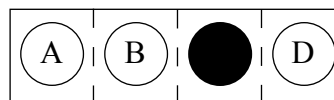
Before the test begins:

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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5. Which of these hazard labels shows that chlorine is toxic?



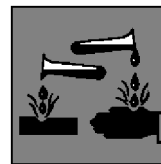
A



B



C



D

6. A test for chlorine is that it

- A ignites with a pop
- B bleaches damp litmus paper
- C turns limewater cloudy
- D relights a glowing splint

Ammonia is another toxic gas.

7. Ammonia, NH_3 , is

- A an element
- B a mixture
- C a compound
- D a salt

8. Ammonia is used in

- A fruit cakes
- B household cleaners
- C de-icing roads
- D fizzy drinks

Salt and vinegar



common salt



vinegar

9. Salt and vinegar are often added to chips.
This is to
- A preserve the chips
 - B cook the chips
 - C add more flavour to the chips
 - D make the chips crisp
10. The chemical name for common salt is
- A sodium chloride
 - B sodium hydroxide
 - C citric acid
 - D ethanoic acid
11. Common salt is present in sea water.
This common salt is
- A artificial
 - B toxic
 - C green
 - D natural
12. Salts can be made by reacting acids with alkalis.
This reaction is an example of
- A thermal decomposition
 - B oxidation
 - C hydration
 - D neutralisation

Violent reactions

A teacher was showing her class how group 1 metals react with water.

13. When the teacher added potassium to the water it floated on the surface and a flame was produced.



Source: www.webelements.com

The colour of the flame was

- A red
 - B blue
 - C lilac
 - D yellow
14. When potassium reacts with water, heat is given out.
This reaction is
- A exothermic
 - B physical
 - C endothermic
 - D a thermal decomposition
15. Hydrogen is produced when potassium reacts with water.
The word equation for the reaction is
- A potassium + water + oxygen → potassium oxide + hydrogen
 - B potassium + water → potassium chloride + hydrogen
 - C potassium + water → potassium sulphate + hydrogen
 - D potassium + water → potassium hydroxide + hydrogen
16. The reactions of lithium and sodium with water were also shown but the reactions of rubidium and caesium were not.
The teacher did not show the reactions of rubidium and caesium with water because
- A these metals do not react with water
 - B the reactions between these metals and water are very slow
 - C the reactions between these metals and water are more violent
 - D these metals are not in group 1 in the periodic table

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

17. A piece of metal was found in the ground. It was covered in rust.



This metal is

- A iron
 - B copper
 - C silver
 - D gold
18. Rusting is a
- A slow physical change
 - B fast physical change
 - C slow chemical change
 - D fast chemical change
19. Which of the following metals, in one of its compounds, can be identified using a flame test on the compound?
- A iron
 - B copper
 - C silver
 - D gold

20. Iron is a transition metal in period 4 of the periodic table.
Which letter shows the position of iron in the periodic table?

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

21. Zinc compounds in solution can be identified by adding sodium hydroxide solution.
If a zinc compound is present the precipitate formed will be

- A white
- B green
- C brown
- D blue

22. One ore of zinc is calamine.
The main zinc compound in this ore is zinc carbonate, $ZnCO_3$.
When heated this breaks down to form zinc oxide and carbon dioxide.
This reaction is

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

23. Zinc oxide can be converted into zinc by mixing it with carbon and heating the mixture.
This is

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

24. Iron is extracted from iron oxide by heating with carbon but extraction of aluminium needs electrolysis.
Silver can be found uncombined in the Earth's crust.
What is the order of reactivity of the metals iron, aluminium and silver?

	most reactive		least reactive
A	silver	iron	aluminium
B	iron	aluminium	silver
C	aluminium	iron	silver
D	aluminium	silver	iron

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.**

A useful gas

Carbon dioxide is an important and very useful gas.

25. The test for carbon dioxide is that it
- A turns limewater cloudy
 - B puts out a glowing splint
 - C relights a glowing splint
 - D does not affect moist litmus paper
26. In baking, the formation of carbon dioxide makes cakes rise.
The carbon dioxide is formed from
- A phosphoric acid
 - B carbohydrates
 - C sodium carbonate
 - D sodium hydrogencarbonate
27. Which row of the table shows where carbon dioxide is used?

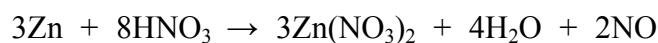
	in fizzy drinks	in fire extinguishers
A	yes	no
B	no	yes
C	yes	yes
D	no	no

31. John added halogens to solutions of sodium halides.
Which of these reacted?
- A iodine and sodium chloride
 - B bromine and sodium chloride
 - C bromine and sodium iodide
 - D iodine and sodium bromide
32. Sodium reacts with water.
The correct equation for this reaction is
- A $\text{Na} + \text{H}_2\text{O} \rightarrow \text{NaOH} + \text{H}$
 - B $2\text{Na} + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{H}_2$
 - C $2\text{Na} + \text{H}_2\text{O} \rightarrow \text{Na}_2\text{O} + \text{H}_2$
 - D $\text{Na} + \text{H}_2\text{O} \rightarrow \text{NaO} + \text{H}_2$
33. If concentrated sulphuric acid is added to sugar, $\text{C}_{12}\text{H}_{22}\text{O}_{11}$, a reaction takes place and carbon is formed.
The reaction is
- A hydration
 - B dehydration
 - C reduction
 - D neutralisation

Salts

Salts are compounds. They can be formed in different ways.

34. Some salts can be formed by the reaction of a metal with a dilute acid.
The equation represents the reaction of zinc with a dilute acid.



The salt formed is

- A zinc nitride
- B zinc nitrate
- C zinc nitrite
- D zinc nitrile

35. Which of these methods could safely be used in the laboratory to produce a sample of solid potassium chloride?
- A** mix solutions of copper chloride and potassium nitrate and filter the mixture
B react excess potassium with hydrochloric acid and filter the mixture
C mix solutions of copper chloride and potassium nitrate and form crystals from the solution
D neutralise hydrochloric acid with potassium hydroxide solution and form crystals from the solution
36. Which row of the table shows reagents that could be added to dilute sulphuric acid to form potassium sulphate?

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

Use the following information to answer questions 37 and 38.

Lead chloride is an insoluble salt.

This is prepared in a chemical reaction that forms a precipitate of the salt and this precipitate can easily be separated and purified.

37. A suitable method of preparing the salt would be to
- A** add excess lead powder to dilute hydrochloric acid
B mix solutions of lead nitrate and potassium chloride
C add excess lead oxide to dilute hydrochloric acid
D add excess lead carbonate to dilute hydrochloric acid
38. A pure, dry sample of the precipitate could be obtained from the reaction mixture by
- A** evaporating
B crystallising
C filtering and drying
D filtering, washing and drying

39. Jane carried out two tests on separate samples of the salt copper(II) chloride. Which of the following statements are true?
- 1 A yellow flame was produced in a flame test.
 - 2 When sodium hydroxide solution was added to a solution of the salt, it produced a green precipitate.
- A 1 only
B 2 only
C both 1 and 2
D neither
40. Copper(II) chloride is a salt used to produce colour in fireworks. It can be made by reacting copper(II) oxide with dilute hydrochloric acid. The equation for this reaction is
- A $2\text{CuO} + 2\text{HCl} \rightarrow 2\text{CuCl} + \text{H}_2 + \text{O}_2$
B $\text{CuO} + 2\text{HCl} \rightarrow \text{CuCl}_2 + \text{H}_2\text{O}$
C $\text{CuO}_2 + \text{HCl} \rightarrow \text{CuCl} + \text{H}_2\text{O}$
D $\text{Cu}_2\text{O} + 2\text{HCl} \rightarrow 2\text{CuCl} + \text{H}_2\text{O}$

TOTAL FOR HIGHER TIER PAPER: 24 MARKS

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