

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 21 November 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.

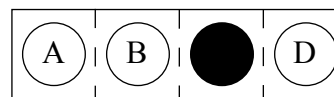
Before the test begins:

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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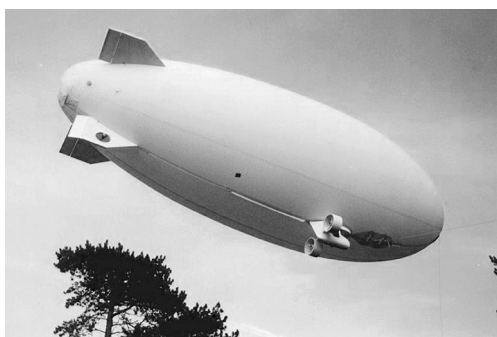
Turn over

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

Useful chemical substances

1. Air ships are filled with helium.



Helium is used in air ships because helium is

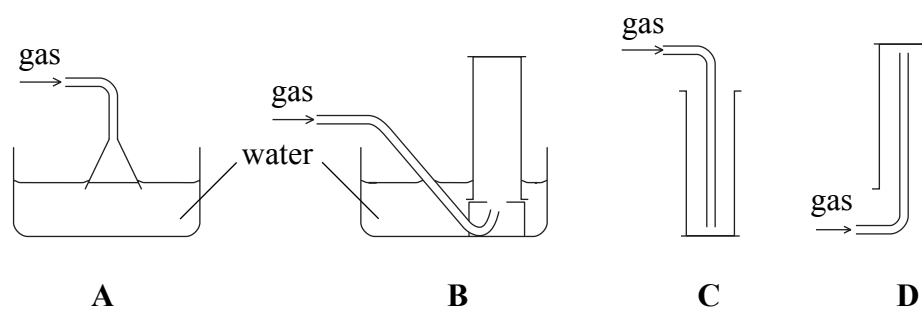
- A a liquid
 - B reactive
 - C less dense than air
 - D coloured
2. Chlorine is added to water supplies to kill bacteria.
Chlorine, at room temperature, is a
- A green-yellow gas
 - B colourless liquid
 - C brown solid
 - D solution
3. Baking powder is often present in cake mixtures.
During baking this powder produces carbon dioxide.
The carbon dioxide
- A makes the cake rise
 - B stops the cake sticking to the cake tin
 - C adds colour to the cake
 - D adds flavour to the cake

4. Carbon dioxide can be made by heating copper carbonate.
The word equation for the reaction is



This reaction is an example of

- A** dehydration
B reduction
C oxidation
D thermal decomposition
5. A gas is very soluble in water and denser than air.
Which diagram shows how this gas would be collected in the laboratory?



- A** manufactured
B safe
C pure
D not man-made
7. Sodium chloride is also known as
- A** caustic soda
B citric acid
C common salt
D phosphoric acid

At a crime scene

Police were called to a break-in at a jeweller's shop.

- 8.** Some rings, made from a shiny, yellow metal, had been dropped by the thief.
This metal is
- A** iron
 - B** sodium
 - C** gold
 - D** silver
- 9.** Some metal filings were found at the crime scene.
To identify the metal, chemists dissolved the filings in dilute hydrochloric acid and then added sodium hydroxide solution.
A pale green precipitate was formed.
This showed that the metal was
- A** iron
 - B** copper
 - C** sodium
 - D** potassium
- 10.** Some white powder was discovered at the crime scene.
In a flame test the powder produced a yellow flame.
This was because the white powder was a compound of
- A** carbon
 - B** neon
 - C** sodium
 - D** copper
- 11.** The symbol for an atom of iron is
- A** I
 - B** Fe
 - C** Ir
 - D** Fe

- 16.** When silver nitrate solution is added to sodium chloride solution, a solid is produced. This solid is
- A** silver
 - B** sodium
 - C** a soluble salt
 - D** an insoluble salt

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.

Copper roofs

Some roofs are covered in copper sheets.



Over several years, the copper becomes coated with a green substance containing copper compounds.

- 17.** The formation of this green coating is a
- A** slow chemical change
 - B** fast chemical change
 - C** slow physical change
 - D** fast physical change
- 18.** Copper can be obtained by mixing copper oxide with carbon and heating the mixture. During the reaction the copper oxide is
- A** dehydrated
 - B** neutralised
 - C** reduced
 - D** oxidised
- 19.** Aluminium is a much more reactive metal than copper. Aluminium can be obtained by
- A** heating aluminium oxide
 - B** heating aluminium oxide with carbon but using a lower temperature than that used for copper oxide with carbon
 - C** finding it uncombined in the Earth's crust
 - D** electrolysis of aluminium oxide in a liquid solvent

20. The word equation for the reaction of copper oxide with carbon is
copper oxide + carbon → copper + carbon dioxide

The reaction is exothermic.
Exothermic means

- A** heat is needed to start the reaction
B heat is given out during the reaction
C the products of the reaction spread out
D there is a colour change during the reaction
21. The formula of copper oxide is

- A** CpO
B Co
C CuO
D CO

Ammonia

Ammonia is a compound formed from nitrogen and hydrogen.

22. Which row of the table shows where ammonia is used?

	in some household cleaners	to make nitric acid
A	no	no
B	no	yes
C	yes	no
D	yes	yes

23. The test for ammonia is that it

- A** bleaches litmus paper
B extinguishes a burning splint
C turns moist red litmus paper blue
D turns moist blue litmus paper red

24. Hydrogen has an atomic number of 1.
This shows all atoms of hydrogen have a nucleus containing

- A** one proton and one neutron
B one proton
C one neutron
D one electron

TOTAL FOR FOUNDATION TIER PAPER: 24 MARKS

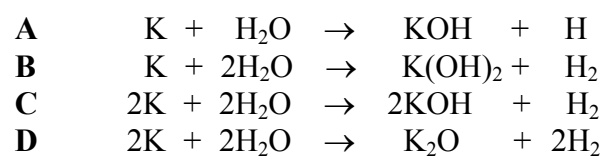
Foundation tier candidates do not answer any more questions after question 24.

29. Lithium, potassium and sodium all react with water.
Which row shows the correct order of reactivity for these three elements?

reactivity decreasing
→

A	lithium	potassium	sodium
B	lithium	sodium	potassium
C	potassium	lithium	sodium
D	potassium	sodium	lithium

30. Which of these is the correct balanced equation for the reaction of potassium with water?



31. In which of these mixtures would the substances react?

- A** chlorine and sodium fluoride solution
B iodine and sodium fluoride solution
C chlorine and sodium bromide solution
D bromine and sodium chloride solution

Salts

Use the following information to answer questions 32 and 33.

Barium sulphate is an insoluble salt.

- 32.** The best method of preparing this salt would be to
- A** add excess barium oxide to dilute sulphuric acid
 - B** add excess barium metal to dilute sulphuric acid
 - C** mix solutions of barium chloride and sodium sulphate
 - D** add barium carbonate to excess dilute sulphuric acid
- 33.** A pure dry sample of the insoluble barium sulphate could be obtained from the reaction mixture by
- A** filtering and drying
 - B** evaporating to dryness
 - C** filtering, washing and drying
 - D** crystallising
- 34.** A salt containing phosphorus atoms has the formula $Zn_3(PO_4)_2$. The correct name for this salt is
- A** zinc phosphide
 - B** zinc phosphioxide
 - C** zinc oxyphosphide
 - D** zinc phosphate
- 35.** Which row of the table shows reagents that could be added to dilute hydrochloric acid to form zinc chloride?

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

- 36.** Magnesium reacts with dilute sulphuric acid to form the salt magnesium sulphate. The equation for this reaction is
- A** $2Mg + H_2SO_4 \rightarrow Mg_2SO_4 + H_2$
 - B** $Mg + H_2SO_4 \rightarrow MgSO_4 + H_2$
 - C** $Mg + 2H_2SO_4 \rightarrow Mg(SO_4)_2 + 2H_2$
 - D** $Mg + H_2SO_4 \rightarrow MgSO_4 + 2H$

Useful compounds

37. Which of the following statements about acids are true?

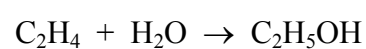
- 1 ethanoic acid is used in fizzy drinks
- 2 citric acid is used in vinegar

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

38. Which of these substances will react together to produce a compound that is used as a fertiliser?

- A sulphuric acid and ammonia
- B nitric acid and lead
- C nitric acid and sodium nitrate
- D sodium nitrate and ammonia

39. Ethanol can be manufactured from ethene.
The equation for the reaction is



This reaction is an example of

- A neutralisation
- B hydration
- C dehydration
- D oxidation

40. Which of the following statements about baking powder are correct?

- 1 baking powder is pure sodium hydrogencarbonate
- 2 carbon dioxide released from baking powder in cooking is mainly produced by thermal decomposition.

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

TOTAL FOR HIGHER TIER PAPER: 24 MARKS

END