

90933



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SUPERVISOR'S USE ONLY

Level 1 Chemistry, 2016

90933 Demonstrate understanding of aspects of selected elements

2.00 p.m. Monday 21 November 2016
Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of aspects of selected elements.	Demonstrate in-depth understanding of aspects of selected elements.	Demonstrate comprehensive understanding of aspects of selected elements.

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should attempt ALL the questions in this booklet.

A periodic table and other reference material are provided in the Resource Booklet L1–CHEMR.

If you need more room for any answer, use the extra space provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–9 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

TOTAL

ASSESSOR'S USE ONLY

QUESTION ONEASSESSOR'S
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- (a) (i) Give TWO physical properties each for the elements magnesium and nitrogen.

- (ii) Explain how the formation of magnesium ions differs from the formation of nitrogen ions, and link this to the positions of magnesium and nitrogen on the periodic table.

- (b) What similarities and differences do elements in the same **group** of the periodic table show, in:
- the reactions they take part in?
 - their reactivity?

Use the elements Li, Na, F, and Cl to illustrate and explain your answer.

In your answer, you should include links to the electron arrangements of these elements.

No chemical equations are needed.

QUESTION TWO

Iron is a very useful metal because its physical properties make it suitable for uses such as car bodies, framing, and roofs. Iron is often alloyed (combined) with carbon to form steel.

- (a) (i) Describe why alloying iron with carbon to form steel makes it more useful, with reference to the relevant physical and chemical properties of steel.

- (ii) For the reaction of iron with oxygen:

- complete the word equation in the box below
- give the balanced symbol equation in the box below.

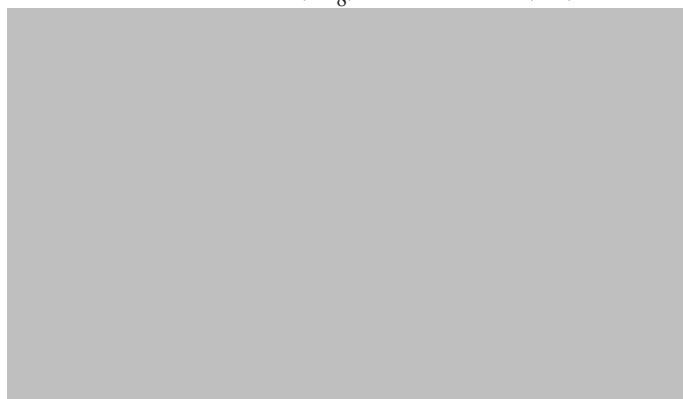
Word equation:

iron + oxygen →

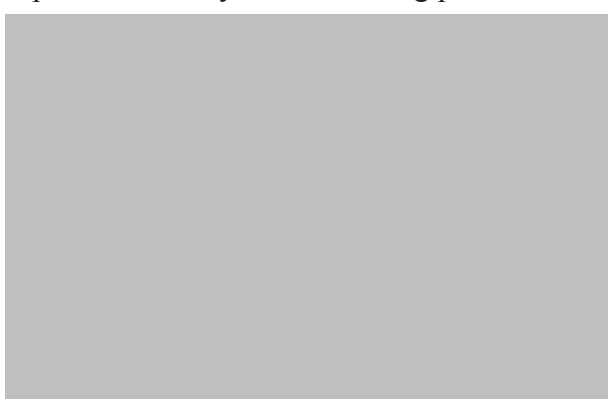
Balanced symbol equation:

QUESTION THREE

The elements sulfur, S₈, and diamond, C, are both important in many manufacturing processes.



<http://www.pbase.com/merlotadl/image/55921128>



<http://www.safarinsouthafrica.com/day-safaris/diamonds-tour.html>

- (a) Give TWO ways that the two elements are different in their physical properties.

- (b) Carbon exists in different forms, called allotropes, which allow it to be used for a wide variety of uses. Two common uses for carbon allotropes are:

- pencil tips
- miniature wires in electrical circuits.

Complete the table below by naming the allotrope of carbon that is most likely to be used for each of the uses given above.

Explain your choice by linking the uses to the properties of each allotrope.

Use	Carbon allotrope
pencil tips	
miniature wires in electrical circuits	

Explanation

Pencil tips: _____

Miniature wires: _____

**Question Three continues
on the following page.**

**Extra paper if required.
Write the question number(s) if applicable.**

QUESTION
NUMBER

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