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 NEW ZEALAND QUALIFICATIONS AUTHORITY
 MANA TOHU MĀTAURANGA O AOTEAROA

For Supervisor's use only

Level 1 Chemistry, 2008

90171 Describe chemical reactions

Credits: Four
 9.30 am Friday 28 November 2008

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 answer ALL the questions in this booklet.

A periodic table is provided in the Resource Booklet L1-CHEMR.

If you need more space for any answer, use the page(s) provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–6 in the correct order and that none of these pages is blank.

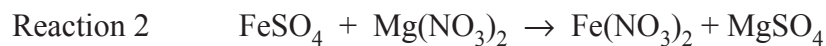
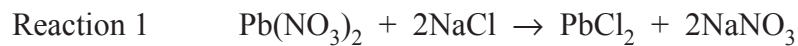
YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

| <i>For Assessor's use only</i> | Achievement Criteria | |
|---|--|---|
| Achievement | Achievement with Merit | Achievement with Excellence |
| Describe chemical reactions. <input type="checkbox"/> | Interpret information about chemical reactions. <input type="checkbox"/> | Apply understanding of chemical reactions. <input type="checkbox"/> |
| Overall Level of Performance | | <input type="checkbox"/> |

You are advised to spend 40 minutes answering the questions in this booklet.

QUESTION ONE : A PRECIPITATION REACTION

Each of the following equations shows what could happen when two solutions are mixed in a beaker.



Use the solubility rules in your Resource Booklet to identify **which reaction would form a precipitate**.

Justify your answer by:

- identifying the ions present in each solution before they are mixed
- identifying the precipitate formed when the solutions are mixed
- explaining why that precipitate forms.

QUESTION TWO: AN OXIDATION-REDUCTION REACTIONAssessor's
use only

Chlorine gas, Cl_2 , is bubbled through a solution of sodium bromide, NaBr . The solution turns orange.

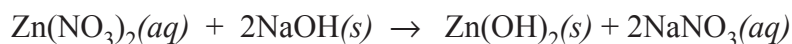
Discuss the chemistry of this reaction.

You need to:

- describe an observation, other than the solution turning orange, that would be made for this reaction
- link the correct species to each observation
- explain why this is an oxidation-reduction reaction
- write an appropriate balanced equation(s) for this reaction. Spectator ions may be omitted.

QUESTION THREE: CALCULATING MASS

Calculate the mass of sodium hydroxide, NaOH , that needs to be added to zinc nitrate to form 7.50 g of zinc hydroxide, $\text{Zn}(\text{OH})_2$. Refer to the Resource Booklet provided for the relative atomic mass values. Show your working clearly for **every step** of your calculation.



Begin by calculating the molar masses of sodium hydroxide and zinc hydroxide.
