



# KWAZULU-NATAL PROVINCE

EDUCATION  
REPUBLIC OF SOUTH AFRICA

## NATURAL SCIENCES GRADE 9

### TERM 2 TOPIC TEST NO. 3

Topic: Acids and Bases

Marks: 15

Time: 15 minutes

#### Question 1

Choose the correct answer and write only the letter (A – D) next to the question number (1.1 – 1.2), e.g., 1.3 D.

- 1.1 ... will be red in an acid, green in a neutral solution and purple in an alkaline.

- A Litmus
- B Any indicator
- C Universal indicator
- D Water

(1)

- 1.2 The correct chemical formulae for hydrochloric acid and sulfuric acid are ...

- A  $\text{HCl}$  and  $\text{H}_2\text{SO}_4$
- B  $\text{H}_2\text{SO}_4$  and  $\text{HCl}$
- C  $\text{HNO}_3$  and  $\text{H}_2\text{SO}_4$
- D  $\text{HCl}_2$  and  $\text{HSO}_4$

(1)

[2]

#### Question 2

A few drops of universal indicator are added to a magnesium oxide solution. The colour scale for universal indicator is given below.

| Universal indicator |                     |       |              |
|---------------------|---------------------|-------|--------------|
| Colour              | Red, orange, yellow | Green | Blue, purple |
| pH                  | below 7             | 7     | above 7      |

- 2.1 What will the colour of universal indicator be in the magnesium oxide solution? Give a reason for your answer.

(2)

2.2 While diluted hydrochloric acid solution is added to the magnesium oxide solution, the colour of the solution gradually changes to green.

2.2.1 What is the pH of the hydrochloric acid solution?  
Choose between BELOW 7, SEVEN or ABOVE 7. (1)

2.2.2 Explain why the colour of the solution will gradually change to green while hydrochloric acid solution is added. (2)

2.3 Complete the following general word equation:  
metal oxide + acid  $\rightarrow$  ... + .. (2)

2.4 The product of the reaction between magnesium oxide (MgO) and hydrochloric acid (HCl) is a compound with the ratio, Mg:Cl = 1:2.  
Give the CHEMICAL FORMULA and NAME of this product. (2)

2.5 Write a balanced chemical equation for the reaction between magnesium oxide and hydrochloric acid. (4)

**[13]**



**Total Marks: 15**



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**NATURAL SCIENCES GRADE 9  
TERM 2 TOPIC TEST NO. 3 MEMORANDUM**

**Topic:** Acids and Bases  
**Marks:** 15    **Time:** 15 minutes

**Question 1**

- 1.1    C✓ (1)  
1.2    A✓ (1)  
[2]

**Question 2**

- 2.1    Blue / purple ✓ (2)  
Magnesium is a metal and metal oxides are basic oxides✓  
2.2.1    Below 7✓ (1)  
2.2.2    Hydrochloric acid makes the basic magnesium oxide solution less basic / more acidic ✓until it becomes neutral. ✓ (2)  
2.3    Salt✓ + Water ✓ (2)  
2.4     $\text{MgCl}_2$  ✓Magnesium chloride✓ (2)  
2.5     $\text{MgO} + 2\text{HCl} \checkmark \rightarrow \text{MgCl}_2 \checkmark + \text{H}_2\text{O} \checkmark$  .Balancing✓ (4)  
[13]

**Total Marks: 15**