

UNIVERSITY OF SWAZILAND
FACULTY OF EDUCATION
MAIN EXAMINATION
MAY 2012
B. Ed. III AND PGCE

Title of paper: Curriculum Studies: Chemistry

Course number: EDC 379

Time allowed: 3 hours

Instructions:

1. This paper contains SIX questions
2. Question 1 is COMPULSORY. You may then choose ANY THREE questions from questions 2, 3, 4, 5 and 6.
3. Marks for each question are indicated at the end of the question.
4. Any piece of material or work which is not intended for marking purposes should be clearly **CROSSED OUT**
5. Ensure that responses to questions are **NUMBERED CORRECTLY**

Special Requirements

SGCSE Physical Science Syllabus 6888 (Chemistry section)

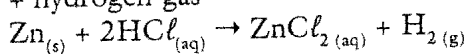
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Question 1 (Compulsory)

- a) State, and describe, **three** functions of concepts in the teaching and learning of chemistry. Use appropriate examples in your response. [9]
- b) Improvisations are important in securing resources for teaching chemistry.
- What do you understand by resources for teaching chemistry? [2]
 - With the help of chemistry examples, describe **two** situations where improvisation(s) would be useful. [4]
- c) Read the text below on reactions of acids.

In the reaction between a **metal and acid a salt and hydrogen are produced**. Only metals that are more reactive than copper will react with dilute acids.

Zinc metal + hydrochloric acid → zinc chloride + hydrogen gas



Sodium, being a very reactive metal, produces a large amount of heat when it reacts with acids. This heat may be sufficient for the hydrogen to react with the oxygen and cause an explosion. The final pH of the salt produced will depend on the metal and acid. The general rule is: the product of a

strong acid and a strong base (or metal of a strong base) is neutral in solution. A strong acid and weak base (or metal of a weak base) is acidic. The salt of a weak acid and strong base is basic, and finally, the salt from a weak acid and weak base can be either acidic or basic depending on how easily the acid and base dissociate into their ions.

The hydrogen that is produced is not pure as it contains a fair amount of water vapour due to the heat of the reaction. This is known as wet hydrogen. Although not pure, the hydrogen is still a lowest density gas. When put into an inverted test tube the hydrogen rises to the top and displaces the air downwards and out of the test tube.

- Identify possible language related problems learners may experience while reading the text. [6]
- What advice might you give a teacher who intends to use the given text? [4]

Question 2

- a) Suppose you are planning for a guest speaker from Swaziland Beverages to give a talk to your Form 5 class.
- Suggest a topic and a sub-topic for the talk by the guest speaker. [2]
 - What might you do to ensure that learners receive maximum benefit from the talk by the guest speaker? [6]

- b) Teachers often complain about learners' lack of chemistry textbooks. State, and explain, **four** factors that may contribute to lack of interest in buying chemistry textbooks? [8]
- c) Discuss the benefits of specifying the resources to use when preparing the scheme of work for chemistry. [9]

Question 3

Curriculum review and development is sometimes motivated by the concerns about its relevance.

- a) What is meant by relevance of a curriculum? [5]
- b) Study the syllabus sub-topics C12.1 Air and C12.2 Water (attached). Then, identify, and justify, 5 aspects that make these sub-topics relevant for Swaziland. [20]

Question 4

“... Women have made significant social, academic, and occupational gains in the past 50 years; for example, women are entering non-traditional fields with more frequency... However, women have still not ultimately achieved true equity with their male counterparts ... (Martin, 2010:27).”

- a) Give three reasons why society should be concerned that women have not achieved true equity with male counterparts in science-based fields of study and occupations? [6]
- b) What explanations might be given for the observed inequity between men and women in socially, academically, and in science related occupations? [8]
- c) Outline **three** strategies a chemistry teacher may employ in a classroom to improve girl learners' opportunities for training in science related fields? [11]

Question 5

There is a view that Science, its teaching, and society are interconnected. Discuss the possible relationship(s) that exists between science and society. Use examples from chemistry to illustrate your points. [25]

