UNIVERSITY OF SWAZILAND

FACULTY OF EDUCATION

DEPARTMENT OF CURRICULUM AND TEACHING

MAIN EXAMINATION PAPER

M. Ed. Curriculum and Teaching

December 2013

Title of paper: Curriculum Studies in Chemistry I

Course number: EDC 646

Time allowed: Three (3) hours

Instructions:

1. This paper contains **FIVE** questions.
2. Choose and answer **ANY FOUR** questions
3. Answer questions and sub-questions in continuous essay form. Question numbers must be adhered to.
4. Marks will be awarded for articulation and integration of ideas
5. Questions carry 25 marks each.
6. Any piece of material or work that is not intended for marking purposes should be clearly CROSSED OUT. Ensure that responses to questions are NUMBERED CORRECTLY.

Special Requirements

SGCSE Physical Science syllabus 6888 (Chemistry section)

THIS PAPER SHOULD NOT BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATOR

QUESTION 1

a) Identify five basic aims of science education? [5]

b) To what extent do you think the Physical Science (Chemistry) curriculum caters for each of the aims stated in (a)? [15]

c) Discuss **two** factors that may constrain the achievement of the aims of science education for secondary school learners in Swaziland. [5]

QUESTION 2

In developing chemistry curricula the following are among factors that need to be considered:

Nature of chemistry; alternative conceptions; language of chemistry; teaching approach

Why is each of these factors important in chemistry curriculum development? [25]

QUESTION 3

Kuhn's Scientific Revolutions theory is considered a major contribution on how science progresses. Using the Chemical Revolution Theory show the strength of Kuhn's theory in accounting for developments in science. [25]

QUESTION 4

While there is no consensus regarding the nature of science McComas, et al. (1998) note that "it is vital for the science education community to provide an accurate view of how science operates to students and ... their teachers." (33)

Discuss this view and show its implications for chemistry teaching in Swaziland. [25]

QUESTION 5

a) "Deficiencies in the outcomes of the traditional science teaching have been the cornerstone of arguments supporting an STS approach" (Aikenhead, 1994:173).

Describe the deficiencies that may be associated with traditional science teaching? [10]

b) Three of eight STS approaches used in science education outlined by Aikenhead, (1994:173) are:

Motivating by STS content;
Casual infusion of STS content and
Purposeful infusion of STS content

Discuss each of these approaches and show which approach might be suitable for the Swaziland context. [15]