

UNIVERSITY OF SWAZILAND
FACULTY OF EDUCATION
DEPARTMENT OF CURRICULUM AND TEACHING
MAIN EXAMINATION PAPER
M. Ed.
December 2015

Title of paper: Curriculum Studies: Chemistry I

Course Code: EDC 646

Time allowed: Three (3) hours

Instructions:

1. This paper contains FIVE questions.
2. Answer ANY FOUR questions
3. Answer questions in continuous essay form.
4. Questions carry marks as indicated.
5. 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 Requirement

None

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

Question 1

- a) Identify and describe **five** features of a chemical/scientific revolution. [15]
- b) How might understanding features of chemical revolutions help to improve one's understanding of science and how science progresses? [10]

Question 2

- a) Scientific methods of inquiry are usually presented as comprising a series of steps. Discuss the strengths and weaknesses of such a representation of scientific methods. [13]
- b) Inductive reasoning and deductive reasoning are key approaches used in scientific methods. Describe these two approaches and show how they can be used in complementary ways for greater efficiency of scientific investigations. Use examples from Chemistry to illustrate your response. [12]

Question 3

Science educators agree that nature of science should be taught as part of the school science curriculum. (Smith and Scharmann, 1999).

Discuss the importance of including the nature of science in school science curricula and the challenges science educators may encounter with teaching the nature of science. [25]

Question 4

Discuss any **three** global goals of science education, showing the challenges chemistry teachers may experience in achieving the goals in their teaching. [25]

Question 5

While the decade for education for sustainable development has come and gone the United Nations General Assembly of 2015 reaffirmed its stand on sustainable development in its 2015 resolutions by including sub-goal number 4.7: *By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including ...through education for sustainable development ...*"

Discuss the implications of this goal for chemistry education. [25]