

**UNIVERSITY OF SWAZILAND**  
**FACULTY OF EDUCATION**  
**MAIN EXAMINATION PAPER**  
**M. Ed.**

**MAY 2010**

**Title of paper :** Curriculum Studies: Chemistry

**Course number :** EDC 647

**Time allowed :** 3 hours

**Instructions :**

1. This paper contains FIVE questions
2. Answer Question 1 and then choose choose ANY TWO questions
3. Answer all questions in essay form
4. Question carry marks as indicated
5. Any piece of material or work which is not intended for marking purposes should be clearly **CROSSED OUT**

### QUESTION 1

“Meaningful conceptual learning should be a central goal in science teaching ... such learning is possible when instruction takes into consideration recent cognitive research about learning.”  
(Roth (1990:141)

With the help of course readings:

- a) Discuss the meaning of the above statement and its implications for instructional practice in science.
- b) Discuss the role that metacognition may play in promoting learners learning of science.

[40]

### QUESTION 2

“Alternative assessment strategies should replace traditional assessments in assessment practices in science.”

Discuss, with justifications, your views regarding the above statement and demonstrate clearly your stance on the matter.

[30]

### QUESTION 3

Arends (2007) notes that “Recognising the diversity among students and understanding how students learn are among the most important challenges you will have to face as a teacher” (41).

Identify and discuss the significance of THREE aspects of diversity among students relevant to Swaziland, and suggest strategies a teacher may employ to accommodate such diversity in her/his chemistry classroom.

[30]

### QUESTION 4

Inquiry-based learning has received much support as a way of promoting effective learning in science, while Kirschner, Sweller and Clark (2006) argue that “... minimal guidance during instruction is significantly less effective and efficient than guidance specifically designed to support the cognitive processing necessary for learning” (76).

Discuss inquiry-based learning in terms of the

- i) various aspects that reflect such an approach as an effective instructional approach, and
- ii) the concerns that may need to be considered when implementing inquiry-based learning.

[30]

### QUESTION 5

*In the view of Shulman (and others), pedagogical content knowledge (PCK) builds on other forms of professional knowledge, and is therefore a critical—and perhaps even the paramount—constitutive element in the knowledge base of teaching. (Rowan et al., 2001:3).*

With reference to chemistry, discuss the issues used in demonstrating that pedagogical content knowledge is a critical and paramount element in the knowledge base for teaching.

[30]