

UNIVERSITY OF SWAZILAND

FACULTY OF EDUCATION

FINAL EXAMINATION PAPER

MAY/JUNE 2006

B. Ed. III AND PGCE F/T

TITLE OF PAPER : Curriculum Studies in Chemistry

COURSE NUMBER : EDC 379

TIME ALLOWED : Three (3) hours

INSTRUCTIONS :

1. This paper contains FIVE questions
2. Question 1 is COMPULSORY. You may then choose ANY THREE questions from questions 2, 3, 4, 5
3. Each question is worth 25 marks
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 NONE

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

QUESTION 1

This question is compulsory

- a) Science education aims at developing pupils' knowledge of scientific concepts and their applications. To what extent does the Information and Communication Technology environment help learners to attain this objective? [7]
- b) What are misconceptions and what are their implications for science teaching and learning? 10]
- c) Parents and schools spend a lot of financial resources securing textbooks for pupils and teachers have the responsibility of identifying appropriate textbooks for their classes.
 - i. What might you consider as important points for selecting a particular book to be a school textbook? [5]
 - ii. How should a teacher ensure that pupils benefit from owning a textbook? [3]

QUESTION 2

In recent years stakeholders in science education have advocated for improving the relevance of science curricula.

- a. Critically examine the agencies of change in science education curricula? [10]
- b. In what way can the views of learners be incorporated into the curriculum? [5]
- c. Justify your view of how should science education reform be developed and implemented in Swaziland. [10]

QUESTION 3

- a. Discuss the assertion that “School can be used to promote gender equity in science and technology”. [10]
- b. Some people believe that it is a waste of time to attempt to raise women to the same academic standards as men in the sciences.
- i. What factors might have contributed to this view? [8]
- ii. Justify your own view about gender equity in science education? [7]

QUESTION 4

- a. With reference to Swaziland examine English language use and the problem of misconceptions in chemistry education. [10]
- b. Using concept mapping, explain how chemistry is interrelated with the social economic and the biophysical environments of the learner. [15]

QUESTION 5

- a. Approaches to conducting practical work with pupils in a class may be classified into standard practical, guided inquiry/discovery and free/unguided inquiry/discovery. Consider the following activity and then answer the questions that follow it.

Chemicals: Sulphuric acid (2 mol/dm³); Copper (II) oxide

Equipment: Test tube rack; Spatula

Procedure: Put about half a spatula of copper (II) oxide into a test tube and add about 5ml of the sulphuric acid. Mix the two chemicals well and allow to stand for about 5 minutes: the un-reacted copper oxide will sink to the bottom.

Questions:

1. Which ions are present in the 2 mol/dm³ sulphuric acid solution?
2. What colour is copper oxide?
3. What is the colour of the solution after the reaction?
4. What ions might be responsible for the colour of the solution after the reaction?
5. Write down and balance the ionic equation of the reaction that has taken place.
6. If one wanted to prepare a pure solution of copper (II) sulphate, what changes would need to be made to the procedure given above and why?
7. How might one obtain pure copper (II) sulphate using the procedure suggested in 6 above?

- i. Classify this activity accordingly and justify your answer. [3]
 - ii. Write a title and an aim for the activity [2]
 - iii. What safety precautions should pupils take while performing the activity? [2]
 - iv. What skills/processes could learners develop while engaged in this activity? Specify what the pupils will be doing as they develop the skill/process. [6]
- b. Design a lesson plan in which the activity could be carried out by a Form V chemistry class. [12]