

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER 2006: BED II PRIMARY

COURSE NUMBER: PEC 277

COURSE NAME: CURRICULUM STUDIES: SCIENCE

TIME ALLOWED: 3 HOURS

- INSTRUCTIONS:
1. THIS PAPER IS DIVIDED INTO TWO SECTIONS.
 2. ANSWER THE COMPULSORY QUESTION IN SECTION A. ANSWER ANY THREE (3) QUESTIONS FROM SECTION B (QUESTIONS 2, 3, 4, 5, AND 6).
 3. DOCUMENTS REFERRED TO IN SOME OF THE QUESTIONS ARE ATTACHED. IF YOU CAN'T FIND THEM ASK FOR THEM.
 4. ANY PIECE OF MATERIAL WHICH IS NOT FOR MARKING PURPOSES MUST BE CROSSED OUT CLEARLY.

THIS PAPER MUST NOT BE OPENED UNTIL PERMISSION IS GIVEN BY THE INVIGILATOR

SECTION A

Answer **ALL** parts of question 1. Use the answer book provided for all answers. Do not write your answers in the question paper. This section does not require long answers.

- a) What scientific processes are involved in the following situations? (3)
- i. The class saw three marks made by three ball falling on a sand pit. When asked what happened they thought that one ball was heavier than the other two.
 - ii. a student accidentally drops a white powder into a clear liquid the teacher asked them to describe what happens.
 - iii. Thandi says that the blue candle will get fished first during an investigation of the rate of at which candles burn.
- b) Indicate whether the following statement are true or false. Write T or F as appropriate for each statement. (4)
- A lesson objectives help a teacher decide on teaching materials.
 - B lesson objectives should always be written before the choice of teaching materials.
 - C meaningful learning is discovery learning.
 - D attainment targets are equivalent to objectives.
- c) Which one of the following is a scientific attitude? (1)
- A observing.
 - B open mindedness
 - C measuring.
 - D drawing conclusions.
- d) The following teaching approaches could be most suitably used to teach some lessons in science.
- i. Group activities
 - ii. Project work
 - iii. Teacher demonstration
 - iv. Field trip
 - v. Discussion

Which of the teaching approaches above would be most suitable for teaching the following? Write the letter and the number to indicate your choice.

- A learning about solubility of materials
- B learning about the effect of the phases of the moon on tidal waves
- C studying types of natural habitats
- D investigating seed germination
- E finding the effect of air pressure of different materials. (5)

- e) Match the following items with their appropriate descriptions. Write the numbers (thus 1. i) to indicate your answer.
- | | |
|--------------|---|
| 1. Fact | (i) group or category of terms |
| 2. Concept | (ii) a predictable relationship between two ideas |
| 3. Principle | (iii) something that is used to represent an idea |
| 4. Symbol | (iv) a group of objects, processes, events sharing unique properties |
| 5. Theory | v) a truthful statement or proposition about an object, process or event |
| | vi) a statement that explains observation of events, processes or behaviour (5) |
- f) Constructivist learning occurs if the information is intelligible. Give **one** other conditions for this type of learning. (2)
- g) Which of the following is **not true** about planning a lesson?
- A obtain information about the textbook
 - B obtain information about the learners
 - C stop children from being playful in a science class
 - D find out what students already know about the lesson (1)
- h) During a science class your students may exhibit the following behaviour. Which three of them would indicate that they are developing scientific attitudes? Write the letter of your choice.
- A Students recite what the teacher said in class
 - B Thabo checks with his mother about a point the teacher made concerning human reproduction
 - C Sam and Lolo argue that they need to repeat their measurement
 - D Lily reads her notes in preparation for the test
 - E Khabo and Daisy ask the game keeper why some birds migrate in winter (3)

SECTION B

Answer any **THREE** questions from this section

Question 2

- a) Science is said to be
- Falsifiable
 - Explaining and predicting
 - Involving specific methods of investigation.

Explain what each of these concepts mean. (15)

- b) Present arguments to support the idea of teaching science at primary school level. (10)

Question 3

In Swaziland, science teaching is meant to be contextualised and many teachers are already attempting to do so. Given that contextualisation involved linking lessons with real life, problematising the context and forming links with new lesson.

- a) Study the following introduction to a Grade VI lesson on mixtures.

Teacher starts the lesson by telling the following story.

One hot Saturday morning Thandi was playing with his brother Musa at their home at Ludzeludze. They were eating ice block. Suddenly their mother called Thandi to send her to the store. *(At this point teacher may ask students what they think Thandi did with her ice block then. Do not spend much time speculating here though).* Well Thandi left her ice block in a mug on the table *(teacher could ask if it was wise to do that)*. She told Musa not to eat it and she left. When she came back, she found everything where she had left it but the ice block had changed. She was so angry that she accidentally dropped the paper packet of sugar into a bowl of water. Now mother was angry. *Why was Thandis' mother angry? If she was your mother what would happen? Thandi thought that the sugar was not all lost, what do you think?*

What should you do to help Thandi with her two problems?

Now you will find out how to help Thandi explain her problem. Now get to your groups. ...

- i. Suggest a suitable topic for this lesson. (2)
- ii. Write two concepts that could be taught using this introduction. (4)
- iii. Suggest two scientific processes that might be developed in this lesson. (4)
- iv. Give a short critique of this introduction indicating its strong and weak points. (15)

- b) Write an introduction for a contextualised lesson on a topic of your choice. Use the NCC materials provided to help you. (10)

Question 4

- a) List **five** points that make the scientific information different from other types of information. (5)
- b) Discuss the merits and demerits of using real life contexts for teaching science. (10)
- c) You are a science teacher in a primary school. Your school wants to appoint a head of department but they have no idea what his/her responsibilities would be. Give them some advice. (10)

Question 5

- a) The following are different types of assessment instruments. Write the advantages and disadvantages of using them.

Multiple choice

True or false

Essay

(15)

- b) Write **one** multiple choice and **one** True or False and **one** essay type question to assess student learning in “matter and energy”. The questions should be above knowledge level. (10)

Question 6

You are expected to teach “soil types” to a Grade V class. The teaching strategies at your disposal include:

1. Discovery
2. Demonstration
3. Lecture
4. Group/individual practical work
5. Field trip

- a) List **three** important points to consider when selecting the teaching strategy (strategies) for a lesson on soil types and briefly describe one of them. (6)
- b) Choose any **one** of the above methods you consider suitable for the teaching of soil types and
- i. Give the specific characteristic of the method (4)
 - ii. Show the role of the teacher and pupils in the lesson. (5)
 - iii. What are the learning benefits derived from this method for teaching the topic. (5)
 - iv. State the limitation of the method. (5)