

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER MAY 2011: BED II PRIMARY

COURSE NUMBER: PEC 276

COURSE NAME: CURRICULUM STUDIES: MATHEMATICS

TIME ALLOWED: 3 HOURS

- INSTRUCTIONS:
1. THIS PAPER HAS TWO SECTIONS. SECTION A: IS COMPULSORY, ANSWER ALL QUESTION FROM THIS SECTION.
 2. SECTION B: YOU MAY CHOOSE ANY **THREE** QUESTIONS FROM THIS SECTION.
 3. YOU WILL ANSWER QUESTION A TOTAL OF **FOUR** QUESTIONS
 4. DOCUMENTS REFERRED TO IN SOME OF THE QUESTIONS ARE ATTACHED. IF YOU DO NOT FIND THEM, ASK FOR THEM.
 5. ANY PIECE OF WRITTEN WORK WHICH IS NOT FOR MARKING PURPOSES MUST BE CROSSED OUT CLEARLY.

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

Answer **question 1** and any **three** other questions from this paper.

Question 1 This question is compulsory.

- a. Children often get calculations wrong because they commit different kinds of errors. Explain this phenomenon and use the following problem to calculation to illustrate three common types of errors made. Indicate the nature of the error in each case. (10)

$$1.307 + 214.0998 + 54$$

- b. What is meant by the mathematics laboratory method (5)
- c. What are **three** characteristics of a good test. (6)
- d. Suggest **two** intrinsic reasons for learning mathematics. (4)

Question 2

- a) The following shows parts of a lesson plan for a Grade 5 mathematics class. Study it carefully noting the teaching method adopted.

Phambili Primary School		
Grade V	Mathematics	Tuesday 11. 02 2011
Lesson Topic:	Volume of liquids	
Teaching method:	Problem solving	
T/ Learning materials:	3 & 5 litre jugs per group (five groups) water, 20 litre buckets.	
Statement of Outcomes:		
Introduction:		
Presentation:		
Step 1:		
Step 2:	Measure 7 litres of water into the bucket. Write down how you did it.	
Step 3:	Now measure 13 litres of water into the bucket. How did you do it?	
Step 4:	Now measure 17 litres of water and describe your method.	
End of lesson:		

Do you agree with the teacher that the problem solving teaching method was used? Use your knowledge of problem solving to support your answer. (15)

- b) Show with examples how 'excursions' can be used as both a direct or indirect teaching method. (10)

Question 3

The following shows actual learner responses in a real life mathematics class.

Lesson:	Calculating density using the formula: $\text{density} = \frac{\text{mass}}{\text{volume}}$
	An object has mass of 50g and volume 250ml, find its density. Do your calculation on the board.
Thoko:	Density = $\frac{250}{50} = 5 \frac{\text{g}}{\text{ml}}$
Teacher:	is that correctly put in order?
Sipho:	Yes teacher
Teacher:	Tell me why it is correct. Thoko, what did you do?
Thoko:	I divided the mass by the volume like this (pointing at the formula)
Sipho:	You cannot divide a small number by a big number, which is why you divide by 50.
Teacher:	are you sure?

- a) Explain (i) Thoko and (ii) Sipho's problem indicating sources of their difficulty. (4)
- b) Develop activities for Thoko and Sipho that are aimed at addressing their problem. Show how each activity attempts to meet the needs of the learners in question. You may use the grade 6 mathematics books provided. (15)
- c) Write **three** different questions you might use to help them practise the skill needed to address their problems. Each question should address a different angle of the problem. (6)

Question 4

- a) Piaget says that difficulties of student learning mathematics are caused by inability to conserve quantities. Discuss this assertion using examples from three different quantities to show how difficulty with conserving manifests itself. (15)
- b) Children often find it difficult to learn to handle fractions in calculations. Briefly describe the source of difficulty and suggest how this can be addressed in a mathematics lesson. (10)

Question 5

- a. Some students argue that they never want to do mathematics for a number of reasons. One of the reasons is that mathematics is too specialised and different from the other subjects they do. Explain how you would address this problem. (10)
- b. Below is a picture of the globe/world map showing the continent of Asia where Japan lies. Use the picture below to develop a contextualised lesson plan in mathematics. Your lesson plan containing all the normal detail of a lesson plan should show how the picture will be used. (15)



Question 6

- a) Compare and contrast the behaviourist and developmentalist view of learning. (18)
- b) Describe the different types of knowledge covered in this course (7)