

**UNIVERSITY OF SWAZILAND**

**FINAL EXAMINATION PAPER MAY 2007: BED II PRIMARY**

**COURSE NUMBER: PEC 276**

**COURSE NAME: CURRICULUM STUDIES: MATHEMATICS**

**TIME ALLOWED: 3 HOURS**

- INSTRUCTIONS:**
- 1. THIS PAPER HAS SIX QUESTIONS. YOU WILL ANSWER A TOTAL OF FOUR QUESTIONS**
  - 2. ANSWER QUESTIONS 1. SELECT ANY THREE (3) QUESTIONS FROM 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**

**Question 1** This question is compulsory.

- a. Define, with examples, the following
- ii. invariance of number (3)
  - iii. reversibility of thought (3)
  - iv. readiness activities in mathematics (3)
- b. Using appropriate examples of teaching methods show the difference between teacher-centred direct and teacher-centred indirect teaching methods? (8)
- c. Outline Gagne's learning theory. Show how it is used in mathematics (8)

Choose any **THREE** questions from the following questions.

**Question 2**

- a. Consider the following teaching/learning situation. A Grade 6 teacher introduced the lesson by giving the following questions and got the responses below.

Musa wakes up at 6:00 am, takes a bath for 10 minutes, dresses for school for 5 minutes, eats breakfast for 10 minutes and leaves for school at \_\_\_\_\_ ?

Answers:	Student A	6:10
	Student B	6:15
	Student C	6:20
	Student D	6:25

Assuming that D is correct and that Musa arrived at school at 7:40, how many minutes did he take for the walk to school?

Answers:	Student A	1 hour 30 minutes
	Student B	1 hour 25 minutes
	Student C	25 minutes
	Student D	1 hour 15 minutes

- i. Write three objectives for the lesson. (9)
  - ii. Discuss the two questions. Include in your discussion, their purpose, student difficulties revealed and strategy to help them. (15)
- b. Discuss the use of context based teaching in mathematics.

**Question 3**

- a. A teacher gives the following problems to a class of Grade 5 learners.

In a test marked out of 50, marks for five pupils were as follows:  
39, 30, 17, 22, and 6. How many marks did they get all together?  
*Teacher comment:* some learners have difficulty with place value.

- i. What observation might this teacher have made to come to this conclusion? (10)
- ii. Supposing one of the learners gave the answer as 94, show what the problem is. (5)
- b. Design an assignment card to help learners through their difficulties for use in a mathematics laboratory. (10)

**Question 4**

Supposing you were a senior teacher in your school and you decide to hold a brief meeting with all mathematics teachers. You want to talk about what you have learnt about difficulties children have in learning mathematics.

- a. Describe what you would say to them about problems associated with  
(i) Multiplication (ii) Fractions (iii). Time (15)
- b. You decide to propose the mathematics laboratory approach. Briefly outline what you would say to explain this concept to them. (10)

**Question 5**

Teacher A starts a lesson by reminding learners about adding fractions with the same denominator e.g.  $\frac{2}{5} + \frac{3}{5} =$  and asks

- a) What is the answer?  
b) How did we get it?

The teacher then gives strips of paper of different sizes to the learners. He pins up a chart with different size rectangles drawn in it on the board. On the chart were rectangles which could be covered by specific numbers of strips. For example three strips of one size would fit one rectangle or six strips of a different size would fit the same rectangle. Learners are asked to use the different strips to fill up the rectangles and to write down how many of size they fitted into given rectangles.

Learners are then told to c) write what they found as a fraction each time.

- a. Give a brief critique for this lesson indicating its strength and weaknesses based on the theories of learning. (16)
- b. Classify, with reasons, questions a, b, and c, according to Bloom's taxonomy and justify your answer. (9)

**Question 6**

- a) Contextualisation is based on the constructivist theory of learning. Describe what this means. (10)
- b) Using an example of a mathematics lesson of your choice, show the features of context based teaching. (15)