UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER MAY 2010:   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 WRITTTEN 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
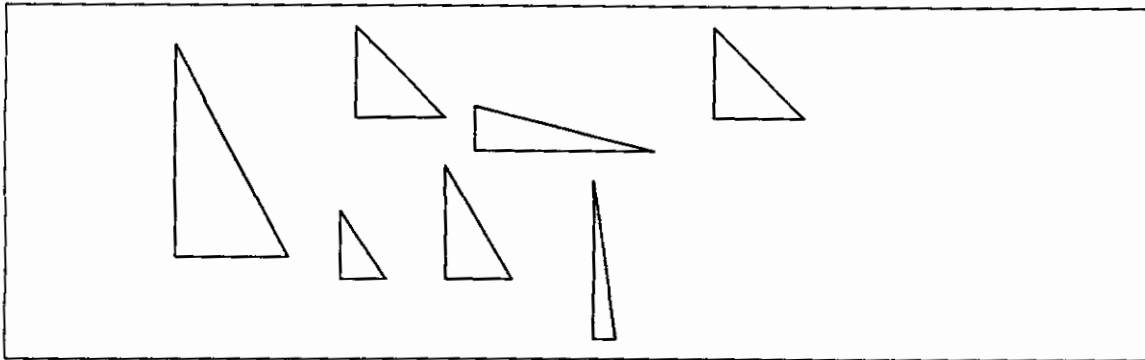
SECTION A

Answer **all** questions from this section. Do not write long answers;

Question 1   This question is compulsory.

    a.   Explain what the following abilities entail:

        ii.   conserving   (2)
        iii.   reversibility of thought   (2)
        iv.   transitivity   (2)

    b.   Supposing children are given the task to organise the following figures and they decide to arrange them according to height.

    Using one word or phrase, show children at the following stages of mathematical development might approach the task. Write the number and your answer (e.g. i) count)   (6)

    i)   Stage 1: ………………………………………………………………………
    ii)   Stage 2: ………………………………………………………………………
    iii)   Stage 3: ………………………………………………………………………

    c. Give an example of a 'Problem solving' activity in a mathematics class.

        (3)

    d. Write question(s) as examples of Socratic questioning in mathematics teaching.   (2)

    e. Illustrate a **three** step of Gagne's task analysis of the concept 'multiplication'.   (3)

f. Mrs Lay, a Grade 6 teacher gave the following task to three pupils, and asked them to describe what they held in their hands:

Sindi:	three 10c coins with 8 curved sides;
Tammy:	three 50c coins with 10 straight sides
Baphi:	two 20c coins with 10 curved sides.

How many coins are there altogether? *(8)*. Correct! Did you use all the information given? *(no)*. Why? *You don't need it to answer the question*. Good. (words in italics are student answers.

This teacher is most probably teaching what skill?

A   critical thinking
B   problem solving
C   Investigation
D   Adding   (2)

g.   Indicate whether the following are true or false

A   If a child is able to show that $2 + 4 = 6$, he/she can also tell that $2 + 4$ is another name for 6.

B   Drill and practice is useful in helping children remember rather than learn maths.

C   The multiplicative fact, $3 \times 4 = 12 \iff 4 \times 3 = 12$, shows the commutative property of the operation.   (3)

Total   **25**

SECTION B

Choose any **THREE** questions from this section.

Question 2

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

Lesson topic; Adding and Subtracting mixed numbers

Today we will learn to add and subtract mixed numbers (the teacher writes the following problem on the board and asks a few students to do calculation on the board).

Problem $\qquad 1 + \dfrac{2}{3} =$

The following are answers from five students A, B, C, D and E:

Student:

A: $\dfrac{12}{3}$;   B: $\dfrac{6}{3}$;   C: $\dfrac{3}{3}$;   D: $\dfrac{5}{3}$ E: $\dfrac{3}{4}$

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a)   Write three objectives for the lesson.   (6)
b)   Identify different ways each student might have arrived at his/her answer. (10)
c)   Suggest strategies you would use to target the students' problems where they exist.   (9)

Question 3

a)   The following shows the average number of hours a week given to each subject in Swaziland primary schools.

Subject	Number of Hours per week
English	7
Mathematics	6
Science	2
SiSwati	3
Social Studies	2

What does this information show about the priority given to each subject in the schools in Swaziland? Suggest possible reasons for it.   (15)

b)   Supposing you have to give a talk during a community meeting, outline what you would say to convince members of the public that mathematics is an important school subject.   (10)

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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 approach to them.   (10)
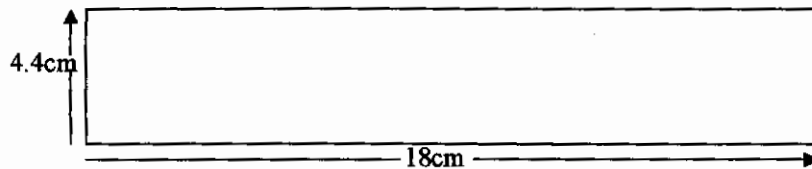
Question 5

Mr. Tom gives a 60 minute test to a Grade V mathematics class. The test contained the following questions:

1. Find the areas of the following figures

a)   b)

2.2cm   2.2 cm

—5cm—   ——6cm——
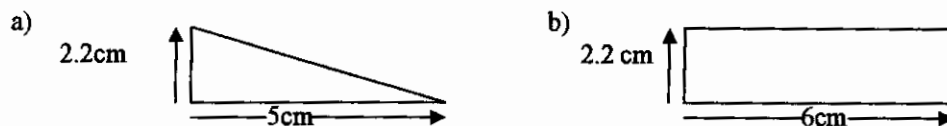
2. What is a perimeter?
3. How many rectangles from b) would fit in the following rectangle?

4.4cm

——————— 18cm ———————

a.   Classify the questions above according to Bloom's taxonomy.   (6)
b.   Give a brief critique of this test indicating its strengths and weaknesses. (9)
c.   Describe **five** uses of assessment.   (10)

Question 6

a) Contextualisation is based on a 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. Use the primary mathematics book provided.   (15)