

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER 2006: BED II PRIMARY

COURSE NUMBER: PEC 276

COURSE NAME: CURRICULUM STUDIES: MATHEMATICS

TIME ALLOWED: 3 HOURS

- INSTRUCTIONS:
1. THIS PAPER IS DIVIDED INTO TWO SECTIONS.
 2. ANSWER THE COMPULSORY QUESTIONS 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

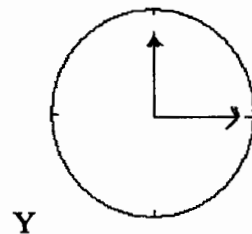
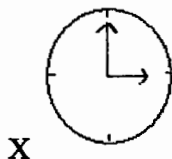
Answer **all** parts of question 1. Do not copy any of the questions. Simply write the letters and number to indicate your answer. Use the answer sheet provided. **DO NOT** write on the question paper.

Question 1

- a) The following approaches to teaching might be used in teaching Mathematics. Indicate a theorist who might be associated with each approach by writing the letter and the name of the theorist. Choose a theorist from the list below.

Gagne and Bruner

- A arrange a classroom in neat rows to allow clear visibility to ensure class control.
- B gets students to search for information on the history of numbers and present that to the class.
- C provide tins, sticks, paper cut outs, bottle tops, blocks, etc, for student to use in learning place value.
- D arranges desks like work tables for students to sit around and discuss.
- E state objectives clearly and also repeats a lesson if 60% of students fail a topic test.
- F brings charts, sticks etc., to demonstrates to students how to do addition operations.
- G writes objectives that focus on developing process skills (7)
- b) Arrange the following fractions in the order in which a behaviourist such as Gagne would teach addition of fractions. Write the letter corresponding to the addition sums only
- A $\frac{1}{2} + \frac{1}{4}$
- B $\frac{1}{2} + \frac{1}{3}$
- C $\frac{1}{4} + \frac{3}{4}$
- D Writing simple fractions (4)
- c) What does addition and multiplication have in common? (2)
- d) Musa, a six-year old, is shown the two clock faces A and B



He was told that the long hand in clock X takes 15 minutes to move from the vertical to the horizontal position shown. When he was asked how long the long hand in Y takes to move the same position he said it would take longer. This is because he

- A cannot read time correctly
- B is unable to conserve time
- C is unable to judge distance
- D cannot conserve number (1)

e) What three stages do children appear to go through in solving mathematical problems? (3)

f) Here is a list of words you came across in this course. They represent processes which might be involved while someone is carrying out an activity. Identify the activity they might be associated with. Do not describe the activity but name it (e.g. A. addition)

- A inclusion theory
- B transitivity (5)

g) Indicate whether the following are true or false

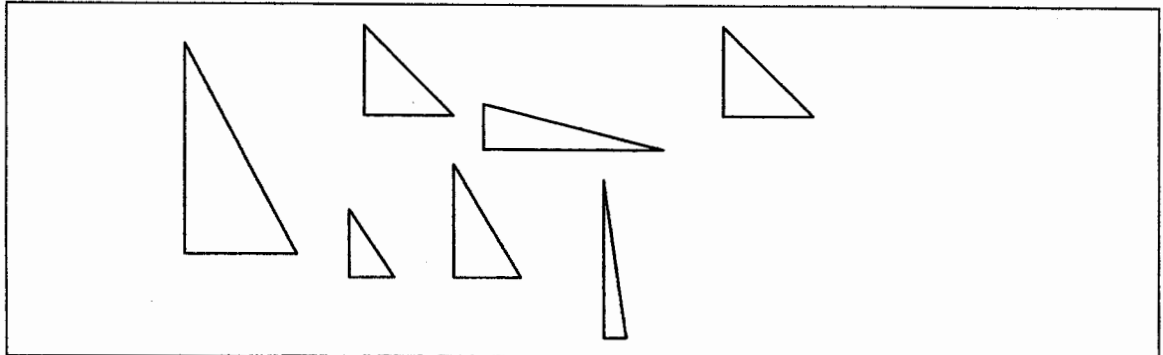
- A If a child is able to show that $2 + 4 = 6$, he/she can tell that $2 + 4$ is another name for 6.
- B Drill and practice is useful in helping children remember rather than learn maths.
- C the multiplicative fact, $3 \times 4 = 12 \Leftrightarrow 4 \times 3 = 12$, shows the commutative property of the operation.
- D running mathematics laboratories takes more time than can be allocated in the school time table (6)

SECTION B

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

Question 2

- a) Supposing children are given the task to organise the following figures and they decided to arrange them according to height.



Explain how children at different stages of mathematical development might approach the task. (15)

- b) Discuss the concept of 'Problem solving' and how it could be applied in a mathematics class (10)

Question 3

- a) The following shows the average number of hours a week given to each subject.

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 subject. (10)

Question 4

You are involved in a debate with a behaviourist, using examples from specific lessons, show how you would

- (a) Explain the learning process if you held the constructivist view (13)
- (b) What would the behaviourist say to indicate his own point of view about learning? (12)

Question 5

One objective of primary mathematics programme in Swaziland reads;

To help children deal with real life experiences and problems they may encounter.

- a) Analyse this objective (5)
- b) Write three objectives from any domain that would contribute to this broad objective using a topic of your choice. Objectives should of higher. You should propose the level of demand of your objective. (12)
- c) Discuss two issues that may restrict the teaching of mathematics in the country in ways that help to deal with real life experiences and problems. (8)

Question 6

- a) Develop a work card for a lesson that involves place value. (13)
- b) Discuss some common error children make in carrying out multiplication operations and show how those mistakes could be addressed. (12)