UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER DECEMBER 2016:   BED III PRIMARY

COURSE NUMBER: PEC 376

COURSE NAME: CURRICULUM STUDIES: MATHEMATICS

TIME ALLOWED: 3   HOURS

INSTRUCTIONS: 1.   THIS PAPER HAS SIX QUESTIONS.

2.   ANSWER QUESTION 1 AND ANY **THREE** OTHER QUESTIONS.

3.   YOU WILL ANSWER A TOTAL OF **FOUR** QUESTIONS. EACH QUESTION IS WORTH 25 MARKS.

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

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

Question 1

... should we integrate mathematics and science in reforming science education?
(From Furner and Kumer, 2007)

    a. Discuss this question giving **three** benefits and **three** problems for integrating
        mathematics and science.   (18)

    b. Use the activity in appendix A to show how mathematics and science has been
        integrated.   (7)

                     Total   **25 Marks**

Question 2

    a) Distinguish between errors and misconceptions giving examples from mathematics to
        illustrate your answer.   (15)

    b) Describe concept development using examples from mathematics.   (10)

                     Total   **25 Marks**

Question 3

    a) Describe Maslow's theory of motivation   (15)

    b) How does the humanist view of motivation differ from the behaviourist view?
                                                  (10)

                     Total   **25 Marks**

Question 4

    a. Outline the criteria used for selecting teaching resources   (10)

    b. Supposing you are responsible for teaching mathematics to a Grade VI class,
        describe the resources you would use to teach the topic in Appendix A.
        (15)

Total   **25 Marks**

Question 5

Learners tend to have difficulties in learning mathematics. Discuss showing the type of difficulties faced and effect on learning. (25)

Total   **25 Marks**

Question 6

    i. Define situated cognition. (3)

    ii. Discuss the difference between learning in a home and a school environment. Use examples to illustrate your answer. (16)

Total   **25 Marks**

APPENDX A

Investigation 1: Making a generalisation
Exercise
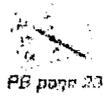
> Study how the following shapes are built using sticks. This is one of
> the traditional patterns used by the Shongo people of central Africa.

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3. Information from the shapes above was put into the table below.
   Complete the table.

The shape number	1	2	3	4	5	6	20	100
Number of sticks in shape	4	12	20	28				

(a) Is it **always** possible to find the number of sticks used when given
    the shape number?

    Yes/no

(b) Complete the generalisation: The number of sticks used is always
    equal to _____ . _____ _____ _____

    _____ _____ _____ _____

4. For this activity, you need to study the Shongo pattern above again.
Complete this table.

The shape number	1	2	3	4	5	6	20	50	100
Number of squares in shape	1	3	5	7					

(a) How do you always get the next number of squares?

_____

_____

(b) Is it always possible to get the number of squares created when given the shape number?
Yes/no
Explain _____

(c) Complete the generalisation for the above table.
The number of squares is always equal to _____

_____