UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER DECEMBER 2014: 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. (12)

b. Write an integrated activity for a Grade VI class. You should highlight the area of integration. (13)

Total **25 Marks**

Question 2

a) Describe **five** areas of difficulty in learning mathematics. (15)

b) Distinguish between errors and misconceptions giving examples from mathematics to illustrate your answer. in learning mathematics showing (10)

Total **25 Marks**

Question 3

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

b) What is the cognitive view of motivation? (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 IV class, describe the resources you would to teach the following:

(i) Shapes
(ii) (ii) Fractions. Justify your choice(s). (15)

Total **25 Marks**

Question 5

Situated Cognition compares learning in the home and school environments.

a. Define Situated Cognition (5)

b. Discuss the difference between learning in a school and home environment. Use examples to illustrate your answer. (10)

c. Supposing you teach mathematics to a Grade V learners, suggest (an) activit(ies) that could be used to ensure learning of mathematics from the point of view of situated cognition. (10)

Total **25 Marks**

Question 6

Appendix A contains test questions from one course.

a. Outline the principle involved in developing a good test. (10)

b. Write a specification grid for question 5. (5)

c. Develop a marking guide for question 3a) (5)

d. Indicate with reasons if this is a good test for a Grade VI class. (5)

Total **25 Marks**

APPENDIX A

Question 2

(a) What is the place value of 5 in the numbers below?

(i) 235.087 [1]

(ii) 0.39562 [1]

(iii) 500.5709 [1]

(b) Rearrange the numbers in 2(a) above to

(i) 2 decimal places, [3]

(ii) 3 significant figures. [3]

Question 3

(a) Work out the following

(i) $-7 - 9 \times 2 + {}^{-}5$ [2]

(ii) $546.39 - 34.2 \times 2 + 5.01 - 400$ [3]

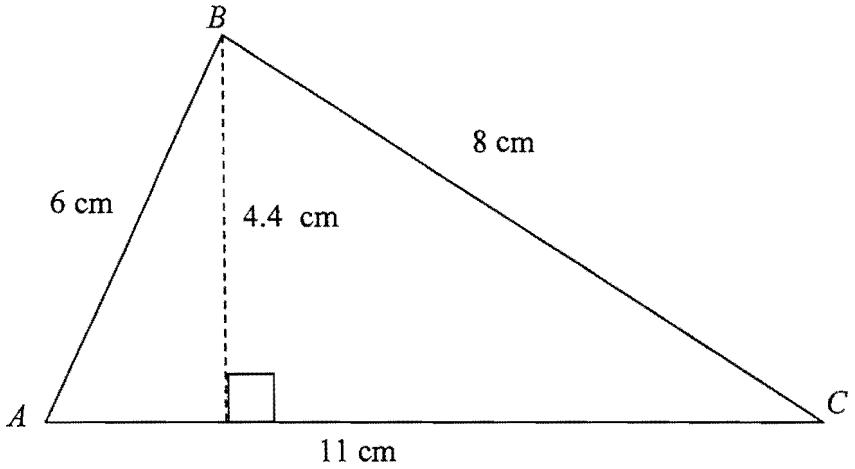
(b) Calculate the following

(i) $\dfrac{3(-5-{}^{-}7)+12}{3}$ [2]

(ii) $\dfrac{3}{4} \div \dfrac{6}{7} \times 3\dfrac{3}{5}$ [3]

Question 5

(a) Triangle ABC is given below.



(i) Calculate the area of triangle ABC in cm^2. [2]

(ii) Write the area of ABC in m^2. [2]

(b) You are given that the area of a rectangle is 60 cm^2 and that its length is 10cm and the width is $(x + 2)$
Calculate the value of x. [3]