

**UNIVERSITY OF SWAZILAND
FACULTY OF EDUCATION
FINAL EXAMINATION PAPER 2005**

TITLE OF PAPER: CURRICULUM STUDIES IN MATHEMATICS

COURSE CODE: EDC 381

STUDENTS: B.ED III AND PGCE

TIME ALLOWE: THREE (3) HOURS

INSTRUCTIONS: ATTEMPT **ALL FIVE** QUESTIONS
EACH QUESTION IS WORTH 20 MKS

ADDITIONAL MATERIALS: APPENDIX 1 AND APPENDIX 2

THIS PAPER CONTAINS **FOUR** PAGES. DO NOT OPENE UNTIL PERMISSION
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EDC 381 Final

ANSWER ALL QUESTIONS

Question 1.

You are the head of department for Mathematics at St Peter's high school, a rural school 50 km from Nhlanguano. Mr. Lucky Simelane a B.Ed direct entry student at UNISWA will be doing teaching practice at your school. He will only be teaching Mathematics and this will be his first teaching experience. He is to take at least 12 periods but not more than 14 periods and has to teach form 4 Mathematics. Give all the details of your duty to this student. [20]

Question 2.

- (I) Work out question 9 from the June 1999 IGCSE exam (appendix 1). [5]
- (II) Using the Cambridge symbolism, prepare a marking scheme for question 9 above. (Decide on the marks you will allocate to each section of the question). [5]
- (III) Use your marking scheme to mark Gcina's response (appendix 2) to question 9. [5]
- (IV) Break down part (a) of question 9 into **five** objective test items. [5]

Question 3.

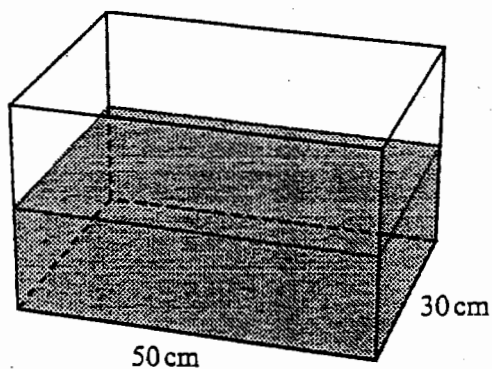
You are the president of SAMT (Swaziland Association of Mathematics Teachers). You have been asked by the membership of SAMT to present issues of concern to the National panel of Mathematics. Write a report that you will use to present these issues to the panel. The issues should indicate those you consider as requiring immediate attention for improvement in Swaziland school Mathematics. The issues should cover these four areas teacher production, teacher deployment, curricula issues and class streaming. [20]

Question 4.

- (a) List **five** problems of learning Mathematics which stem from language. [5]
- (b) State the strategies that you could use in your teaching to minimize the language problems identified in (a). [5]
- (c) Give **five** reasons why communication is important in the teaching/learning of Mathematics. [5]
- (d) (i) For the past four years the best Mathematics student at your school was a girl. So what does this statement, 'boys do better in Mathematics than girls', mean? [3]
(ii) State **two** biological reasons that relate to boys doing better in Mathematics than girls. [2]

Question 5.

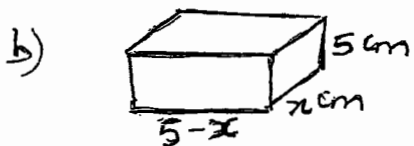
- (a) Write **ten** steps for developing a research proposal [10]
- (b) Write all the sub-headings of a research proposal [5]
- (c) Give a brief explanation for each of the following terms/phrases [5]
 - (i) target population
 - (ii) accessible population
 - (iii) sampling
 - (iv) descriptive statistics
 - (v) inferential statistics.

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- (a) A rectangular tank with length 50 cm and width 30 cm contains 36 litres of water. Show by calculation that the water is 24 cm deep. [2]
- (b) A heavy rectangular block is 5 cm high and x cm wide. Its length is 5 cm more than its width. Write down an expression for the volume of the block in terms of x . [2]
- (c) The block is placed in the tank and the water level rises by 1 cm.
- (i) Write down an equation in x and show that it simplifies to $x^2 + 5x - 300 = 0$. [4]
- (ii) Solve the equation $x^2 + 5x - 300 = 0$. [4]
- (iii) Write down the width and length of the block. [1]
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Question 9

a) $50\text{cm} \times 30\text{cm} \times \underline{24\text{cm}} = 36000 = 36\ell$



$$V = 5-x \times x \times 5$$

$$= 5 - 5x^2$$

$$= 5(1-x^2)$$

c)

(i) $50 \times 30 \times 25 - 50 \times 30 \times 24 = 5(1-x^2)$

$$1500 = 5(1-x^2)$$

$$300 = 1-x^2$$

$$x^2 + 5x - 300 = 0$$

(ii) $x^2 + 5x - 300 = 0$

$$x^2 + 5x = 300$$

$$x(x+5) = 300$$

$$1 \times 300 \quad 2 \times 150 \quad 3 \times 100 \quad 4 \times 75 \quad 5 \times 60$$

$$6 \times 50 \quad 10 \times 30 \quad 12 \times 25 \quad 15 \times 20$$

$$15(15+5) = 300$$

$$x = 15$$

(iii) width = 15cm

length = 20cm.
