UNIVERSITY OF SWAZILAND
FACULTY OF EDUCATION
MAIN EXAMINATION PAPER 2012

TITLE OF PAPER: CURRICULUM STUDIES IN MATHEMATICS

COURSE CODE: EDC 381

PROGRAMME: B.ED 2 & PGCE

TIME ALLOWED: THREE (3) HOURS

INSTRUCTIONS: ANSWER ANY **FOUR** QUESTIONS. EACH
QUESTION IS WORTH 25 MARKS.
DO NOT WRITE ON THE SYLLABUS
PROVIDED.

PROVISION: SGCSE Syllabus

THIS PAPER CONTAINS 3 PAGES. DO NOT OPEN UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATOR

Question 1

(a) Work out the following items:

        (i) If P = {1, 2, 3, 4, 5} and Q = {3, 4 5, 6, 7} are subsets of the universal set
        U = {1, 2, 3, 4, 5, 6, 7, 8, 9}. P∩Q' equals:

        A {1, 2}
        B {1, 2, 6, 7, 8, 9}
        C {8, 9}
        D {3, 4, 5}
        E {1, 2, 3, 4, 5, 8, 9}   [2]

        (ii) Given $x \in R$ and (1) $x^2 = 9$ (2) $x = 3$, Answer:

        A If (1) implies (2) but (2) does not imply (1)
        B If (2) implies (1) but (1) does not imply (2)
        C If (1) is equivalent to (2)
        D If (1) denies (2) or (2) denies (1)
        E If none of the above hold.   [2]

(b) Identify and describe each type of item in (a)   [6]

(c) For item (i) state with justification in each case how each response would arise [15]

Question 2

Write an essay on how you would effectively head a Mathematics department of a typical government school. The essay should include details on how you would do each of the following:

• Organization
• Monitoring
• Professional development
• Liaison   [25]

Question 3

    (a) There is no extensive research that has been carried out on gender issues in school Mathematics in Swaziland. Write **five** research questions on gender issues that you would like investigated in Swaziland.[5]

    (b) Write how you would use **at least five** strategies, in your teaching, to improve girls' attitudes and performance in Mathematics.[20]

Question 4

The question on the next page is a conventional question which you gave to your Form 4 class. Out of the 50 learners you had in Form 4 only 10 got full marks on this question.

    (a) Work out the question.   [9]

    (b) How would you calculate:

        (i) the facility value for the question   [4]
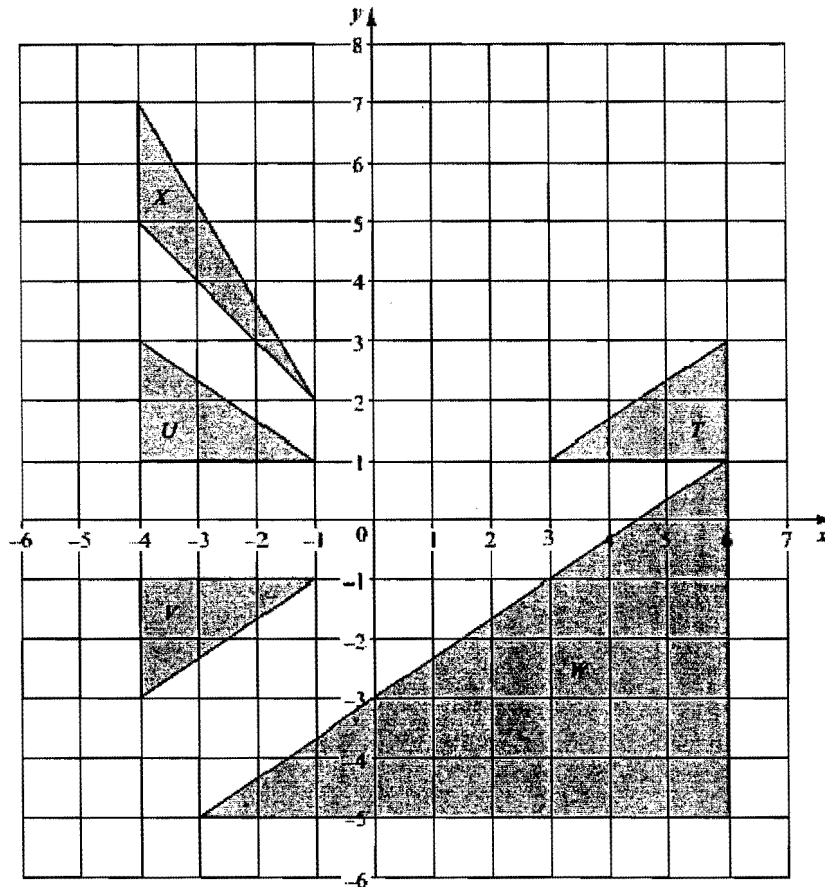   (ii) the discrimination index   [4]

    (c) Justify you answers to (b)   [6]

(d) State all the concepts learners need to know in order to answer part (i) of the given question below [2]

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(i) Describe fully the **single** transformation that maps:
     (a) triangle T onto triangle U
     (b) triangle T onto triangle V
     (c) triangle T onto triangle W
     (d) triangle U onto triangle X
(ii) Find the matrix representing the transformation which maps:
     (a) Triangle U onto triangle V
     (b) Triangle U onto triangle X

Question 5
Write an essay entitled "Language challenges in the learning of School Mathematics"[25]

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