UNIVERSITY OF SWAZILAND
FACULTY OF EDUCATION
MAIN EXAMINATION PAPER 2013

TITLE OF PAPER: CURRICULUM STUDIES IN MATHEMATICS

COURSE CODE: EDC 281

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 4 PAGES INCLUDING THIS ONE. DO NOT OPEN UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATOR

Question 1

Prepare a question and answer presentation for teaching learners rounding off to the nearest tenth. The presentation should include; objectives for the lesson, presumed knowledge, teaching learning materials, an introduction, full presentation section and a conclusion. DO NOT write a lesson plan.   [25]

Question 2

a) Using the old Bloom's taxonomy in the cognitive domain (appendix 1) write down an objective at each level for each sub-topic in 20.11 i.e. (i) to (iv) on the SGCSE syllabus   [24].

b) In one sentence say how you would ensure that the objectives you wrote under higher order abilities are indeed higher order during your teaching   [1]

Question 3

The table on the next page shows some wrong answers learners gave to the question in the first column.

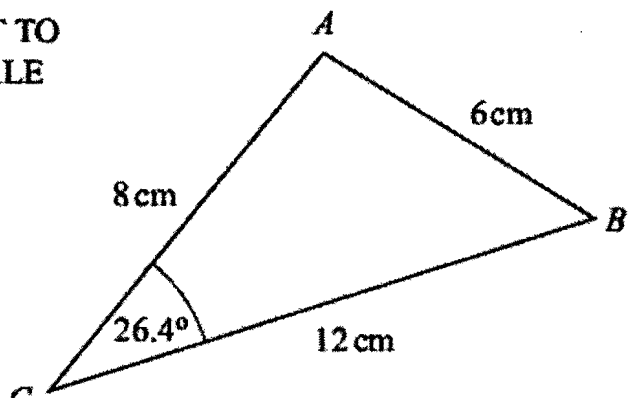a) Study each question and the wrong answer and suggest a possible source of the wrong answer.   [10]

b) Using constructivists ideas about learners' errors suggest how you would help a learner who gets such wrong answers correct his/her own mistakes   [15]

Question 4

c) Basing your answer on the **five characteristics** of Realistic Mathematics Education (RME) i.e. *the use of contexts, the use of models, the use of students own productions and constructions or students' contributions, the interactive character of the teaching process or interactivity and the intertwining of various strands* show how you would teach leaners bar charts informed by this theory.

[25]

Question 5

d) Write a two page essay to support or refute the statement 'Scheming and lesson planning is unnecessary in mathematics since we have well written text books and teachers guides.'   [25]

Question	Common wrong answer	Possible source of wrong answer
1. Melusi's mom paid a shylock E360 interest. This was $\frac{2}{9}$ of the money she had borrowed. How much did she borrow?	E40	
2. Thuli scored 18 marks in an assignment and Ndumi scored 12 marks. Calculate Thuli's mark as a percentage of Ndumi's mark.	66.7%	
3. A 20 km distance is represented as 80 cm on a map. The scale of the map is 1:n, Calculate n	$n = 0.25$	
4. $(2x + 3)^2$	$4x^2 + 9$	
5. In triangle ABC, $AB = 6$ cm, $AC = 8$ cm and $BC = 12$ cm. Angle $ACB = 26.4°$. Calculate the area of the triangle ABC. NOT TO SCALE A 6 cm 8 cm B 26.4° 12 cm C	24 cm^2	

Appendix 1
TABLE 2. Original Bloom's Taxonomy for Mathematics

Cognitive Process					
Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Knowledge and information: the ability to recall definitions, concepts and theories Knowledge of techniques and skills: the use of straight forward calculations and computations, and the ability to manipulate symbols; solutions Knowledge of major ideas Mastery of subject matter	The ability to translate data from one form to another/ translate knowledge into new context , such as verbal into graphical and vice versa Grasp meaning e.g. solve problems where choice of method is necessary Interpret or deduce the significance of data and to follow and extend reasoning, compare, contrast Order, group, infer causes Predict consequences	Use information Use methods, concepts, theories in novel situations presented in unfamiliar ways Solve problems using required skills or knowledge	Seeing patterns Organization of parts Recognition of hidden meanings Identification of components	Use old ideas to create new ones Generalize from given facts Relate knowledge from several areas Predict, draw conclusions	Compare and discriminate between ideas Assess value of theories, presentations Make choices based on reasoned argument Verify value of evidence Recognize subjectivity

Adapted from (Fraser & Gillam, 1972; Wendell, 2007)