UNIVERSITY OF ESWATINI

FACULTY OF EDUCATION

MAIN EXAMINATION PAPER 2021

TITLE OF PAPER: CURRICULUM STUDIES IN MATHEMATICS

COURSE CODE: CTE532

PROGRAMME: PGCE

TIME ALLOWED: THREE (3) HOURS

INSTRUCTIONS:

1. ANSWER ANY **FOUR** QUESTIONS. EACH QUESTION IS WORTH 25 MARKS.
2. ESSAYS SHOULD BE AT LEAST 3 PAGES AND AT MOST 4 PAGES

This paper contains 4 pages including this one

DO NOT OPEN THIS PAPER UNTIL INSTRUCTED

TO DO SO BY THE INVIGILATOR

Question 1

a) What is meant by curriculum integration? [4]

b) Describe with examples the fragmented model of curriculum integration and discuss its pros and cons. [10]

c) Name and describe with examples a model of curriculum integration that could work well in Eswatini. State reasons why you think this model would work well in Eswatini. [6]

d) In the **Immersed Model** subjects become part of the learner's lens of expertise he/she filters all content through this lens and becomes engrossed in his or her own experience. How could you help your learners to reach the immersed model of curriculum integration in their learning of mathematics? [5]

Question 2

In creating an item bank for the Form that you teach you have to construct completion items.

a) Write **five** objective test completion items for the topic "sets" indicating the objective the item is testing. [15]

b) Name and describe fully the tools you would use to analyse each item to decide if you can save it in the item bank. [10]

Question 3

a) Write an introduction for an essay on language issues in the teaching and learning of mathematics. [3]

b) Identify and discuss **5** language issues pertinent in the **teaching** and **learning** of each of the following EGCSE topics (pages 3-4):

(i) Sets 1.12 – 1.6 [5]

(ii) Linear Programming 22 [5]

c) Suggest ways you could use to alleviate the language issues in b). [10]

d) Write a conclusion for an essay on language issues in the teaching and learning of the two topics. [2]

Question 4

The two major duties of the head of a mathematics department are organisation and monitoring. Write an essay on these two duties in the context of Eswatini government schools. [25]

Question 5

Write an essay on the importance of diagnostic testing in the teaching and learning of school mathematics. [25]

relationships between different sequences. 1.9 Complete and generate number patterns e.g (linear sequences, simple quadratic and cubic sequences). 1.10 Extended curriculum only. 1.11 Extended curriculum only. 1.12 For 2 sets and a universal set, draw Venn diagrams and use the language and notation of sets (i.e. subsets, union, intersection, complement and number of elements). 1.13 Describe and use set symbols: {... } "... is a set of ..." $\in$ "... is an element of..." $\notin$ "...is not an element of..." $\varnothing$, { } the empty set $\cap$ intersection of $\cup$ union of $\subset$ proper subset of $\subseteq$ is a subset of $\not\subset$ is not a proper subset of A' complement of set A E universal set n(A) number of elements in set A 1.14 Extended curriculum only. 1.15 Extended curriculum only. 1.16 Extended curriculum only.	relationships between different sequences. 1.9 Complete and generate number patterns e.g. (linear sequences, quadratic sequences, cubic sequences, exponential sequences and simple combinations of these) 1.10 Generalise number patterns to simple algebraic statements. 1.11 Form an equation by generalisation (nth term) of a given sequence. 1.12 For 2 sets and a universal set, draw Venn diagrams and use the language and notation of sets (i.e. subsets, union, intersection, complement and number of elements) 1.13 Describe and use set symbols: {... } "... is a set of ..." $\in$ "... is an element of..." $\notin$ "...is not an element of..." $\varnothing$, { } the empty set $\cap$ intersection of $\cup$ union of $\subset$ proper subset of $\subseteq$ is a subset of $\not\subset$ is not a proper subset of A' complement of set A E universal set n(A) number of elements in set A 1.14 List and describe elements and use set symbols for more than two sets. 1.15 For 3 sets and a universal set, draw Venn diagrams and use the language and notation of sets (i.e. subsets, union, intersection, complement and number of elements). 1.16 Use set builder notation to describe sets.

22. Linear Programming ***[Topic Areas: Algebra, Data Handling and Shape, Position and Space]***	
Learners should be able to:	Learners should be able to:
22.1 Represent inequalities in one variable on a number line. (*The convention of using open circle for* < *and* > *and solid circle for* ⩽ *and* ⩾ *will be expected.*)	22.1 Represent inequalities in one variable on a number line. (*The convention of using open circle for* < *and* > *and solid circle for* ⩽ *and* ⩾ *will be expected.*)
22.2 Represent graphically single linear inequalities in one or two variables. (*The convention of using broken lines for* < *and* > *and solid lines for* ⩽ *and* ⩾ *will be expected.*)	22.2 Represent graphically single linear inequalities in one or two variables. (*The convention of using broken lines for* < *and* > *and solid lines for* ⩽ *and* ⩾ *will be expected.*)
22.3 Form inequalities from graphs of single regions by first determining the equation of the boundary line.	22.3 Form inequalities from graphs of single regions by first determining the equation of the boundary line.
22.4 Extended curriculum only.	22.4 Represent graphically the solution set of 2 or more simultaneous inequalities in one or two variables. (*The convention of using broken lines for* < *and* > *and solid lines for* ⩽ *and* ⩾ *will be expected.*)
22.5 Extended curriculum only.	22.5 Form inequalities from graphs of regions by first determining the equations of the boundary lines.
22.6 Extended curriculum only.	22.6 Solve simple linear programming problems by representing the information in inequality form and drawing graphs of these inequalities.