UNIVERSITY OF ESWATINI
FACULTY OF EDUCATION
RE-SIT EXAMINATION PAPER SEPTEMBER 2021

TITLE OF PAPER: CURRICULUM STUDIES IN MATHEMATICS I

COURSE CODE: CTE531

PROGRAMME: PGCE

TIME ALLOWED: THREE (3) HOURS

TOTAL MARKS: 100

INSTRUCTIONS: ANSWER ANY **FOUR** QUESTIONS. EACH
QUESTION IS WORTH 25 MARKS.

This paper contains 4 pages including this one

Question 1
(a) Define a concept giving an example of a school mathematics concept. [3]
(b) Explain each of the **two** principles of concept development [6]
(c) Discuss **four** sources of misconceptions in the learning of school mathematics [12]
(d) Discuss achievement as a factor of motivation.[4]

Question 2
Refer to the syllabus extracts 23.1 – 23.5 and 24.1 – 24.10 of the EGCSE syllabus to answer (a) and (b) respectively.
(a) Write a behavioural objective, for **one** section of your choice, such that the objective includes all that behaviourists recommend for stating objectives. Point out each part to the reader. [5]
(b) Prepare a concept map for "Probability" in the syllabus. [20]

Syllabus Extracts

23. Statistics *[Topic Area: Data Handling]*	
Learners should be able to:	Learners should be able to:
23.1 Collect, classify and tabulate data.	23.1 Collect, classify and tabulate data.
23.2 Read, interpret and draw simple inferences from tables and diagrams. Compare sets of data using tables, graphs and statistical measures. Appreciate restrictions on drawing conclusions from given data.	23.2 Read, interpret and draw simple inferences from tables and diagrams. Compare sets of data using tables, graphs and statistical measures. Appreciate restrictions on drawing conclusions from given data.
	23.3 Calculate the range for ungrouped data.
23.3 Calculate the range for ungrouped data.	23.4 Find the mean, mode and median from ungrouped data.
23.4 Find the mean, mode and median from ungrouped data.	23.5 Calculate the mean, median and mode for discrete data.
23.5 Calculate the mean, median and mode for discrete data.	

24. Probability *[Topic Area: Data Handling]*	
Learners should be able to:	Learners should be able to:
24.1 Explain the terms and phrases used in probability. e.g fair, biased, equally likely, etc.	24.1 Explain the terms and phrases used in probability. e.g fair, biased, equally likely, etc.
24.2 Calculate the probability of a single event as either a fraction, decimal or percentage (not a ratio).	24.2 Calculate the probability of a single event as either a fraction, decimal or percentage (not a ratio).
24.3 Understand and use probability scale from 0 to 1.	24.3 Understand and use probability scale from 0 to 1.
24.4 Use the fact that the probability of an event occurring = 1 – (minus) the probability of the event not occurring.	24.4 Use the fact that the probability of an event occurring = 1 – (minus) the probability of the event not occurring.
24.5 Understand that relative frequency approximates to probability provided the number of trials is large enough.	24.5 Understand that relative frequency approximates to probability provided the number of trials is large enough.
24.6 Find probabilities of two combined events using possibility space diagrams for independent events (outcomes represented by points on a grid).	24.6 Find probabilities of two combined events using possibility space diagrams for independent events (outcomes represented by points on a grid).
24.7 Extended curriculum only.	24.7 Use the basic rules of probability for the combined events *A and B* and *A or B.*
24.8 Find probabilities of simple combined events using tree diagrams (independent and dependent events) and Venn diagrams (limited to 2 sets).	24.8 Find probabilities of simple combined events using tree diagrams (independent and dependent events) and Venn diagrams (limited to 2 sets).
24.9 Extended curriculum only.	24.9 Calculate the probability of simple combined events, using possibility diagrams, tree diagrams and Venn diagrams (include more than 2 sets).
24.10 Extended curriculum only.	24.10 Use relative frequency as probability in practice (e.g. frequency and cumulative frequency tables).

Question 3
Choose **two** theories of learning you studied in this course and in essay form discuss how you would use each to guide your teaching of school mathematics. [25]

Question 4
(a) With the help of a diagram explain what it means to say Bloom's taxonomy for the cognitive domain is hierarchical in nature. [10]

(b) Name and briefly explain each part of higher order abilities in Bloom's taxonomy. [6]

(c) Explain the following statement "An item is said to be testing higher order abilities dependent on what was done in the class during instruction."[9]

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Question 5
Write an essay to express your views on the division of the EGCSE mathematics syllabus into core and extended [25]