UNIVERSITY OF SWAZILAND DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND PLANNING

MAIN EXAMINATION:

MAY, 2013

MSc.

TITLE OF PAPER

: LAND AND WATER RESOURCES

PLANNING AND MANAGEMENT

COURSE NUMBER

: ERM 622

TIME ALLOWED

THREE (3) HOURS

INSTRUCTIONS

: ANSWER ANY TWO QUESTIONS, ONE

FOM EACH SECTION

ILLUSTRATE YOUR ANSWERS WITH APPROPRIATE DIAGRAMS WHERE

NECESSARY

MARKS ALLOCATED

ALL QUESTIONS CARRY 50 MARKS

EACH

TOTAL MARKS: 100 MARKS

THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATOR

SECTION A: ANSWER ONE QUESTION

QUESTION 1:

Critically review the importance of Banded Iron Formation as an ore deposit, and comment on its role in the development of Swaziland both historically and into the future.

(50 marks)

QUESTION 2:

(a) Discuss and distinguish between renewable and non-renewable energy resources. Give examples for their respective use and application

(25 marks)

(b) Evaluate the significance and prospects of renewable energy resources for the economic development of Swaziland. Give example

(25 marks)

(50 marks)

SECTION B: ANSWER ONE QUESTION

QUESTION 3:

Discuss the importance of stakeholder participation in water resources planning and management for the future development of Swaziland.

(50 marks)

QUESTION 4:

Using the information presented in Figure 1 write a general mathematical formulation of a linear programming problem to reflect releases from two reservoirs and the flow in a main channel. Explain the formulation, highlighting inherent constraints and assumptions.

(50 marks)