UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER

PROGRAMME: **DIPLOMA IN AGRICULTURE II**
DIPLOMA IN AGRICULTURAL EDUCATION II

COURSE CODE: **APH 203**

TITLE OF PAPER: RANGE AND RANCH MANAGEMENT

TIME ALLOWED: TWO (2) HOURS

**INSTRUCTIONS: ANSWER QUESTION FIVE (5) AND ANY OTHER THREE
(3) QUESTIONS**

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY
THE CHIEF INVIGILATOR**

QUESTION 1

A) With the aid of labelled diagram, describe the trophic levels, energy flow and element circulation that occur in rangeland ecosystems.

(15 points)

B)   Define the biotic and abiotic components of the rangeland ecosystems.

(10 points)

QUESTION 2

Using the lowveld and middleveld range types, explain the differences between sweet veld and mixed (sweet-sour) veld of Swaziland.   (25 points)

QUESTION 3

One of the important aspects of range management is to determine the condition of rangelands for livestock use in order to prevent undue damage to vegetation. Discuss the methods used to determine grass cover, composition and production in rangeland condition assessment.   (25 points)

QUESTION 4

A) Write short notes on
   -Stocking rate and grazing capacity   (8 points)
   -Seasonal drought   (7 points)
   -Rotational grazing system   (10 points)

QUESTION 5

The savannas of Swaziland support large, diverse and dynamic ecosystems sustaining both wildlife and agricultural enterprises. In several cases, however, alien shrubs have been noted to invade the grasslands of this ecosystem. Such invasion has been known as a recent ecological phenomena characterized by a plant density of the invasive shrubs that reaches beyond the level the ecosystem can carry under ' a climax equilibrial' condition. Particularly, considerable extension of *Chromolaena odorata* has been reported in the region. Discuss the use of the following methods for controlling the invasion of *Chromolaena odorata*.

A) The manual methods   (8 points)

B) The chemical method   (7 points)

C) Biological method   (10 points)