



COURSE CODE: CP 302 (S)

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UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER

**PROGRAMME: BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION
YEAR THREE AND BACHELOR OF SCIENCE IN AGRONOMY
YEAR THREE**

COURSE CODE: CP 302

TITLE OF PAPER: CROP NUTRITION

TIME ALLOWED: TWO AND A HALF (2.5) HOURS

**INSTRUCTIONS: ANSWER FOUR QUESTIONS WITH AT LEAST ONE
QUESTION FROM EACH SECTION**

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

SECTION 1: SOIL CHEMISTRY

QUESTION 1

- (a) Discuss the charge characteristics of tropical and subtropical soils and highlight the implications of charges on nutrient availability to plants. [12]
- (b) Discuss the strategies you would recommend to increase the cation exchange capacity of tropical and subtropical soils. [13]

QUESTION 2

- (a) Outline the types of acidity found in soils and indicate the significance of each on plant growth. [6]
- (b) Discuss in detail the acid-infertility of soils [13]
- (c) What interventions would you recommend to improve plant growth in acid soils? [6]

QUESTION 3

- (a) Highlight the factors that influence organic matter content in soils. [10]
- (b) Discuss the properties of organic matter which are important when soils are used for crop production. [15]

SECTION 2: CROP NUTRITION

QUESTION 4

- (a) Discuss the ways in which nitrogen may be added to soils [13]
- (b) What strategies would you recommend to improve the availability and utilization of nitrogen by plants in soils? [12]

QUESTION 5

- (a) Discuss the methods of fertilizer application which you would recommend to sugarcane farmers in your country and highlight the advantages and disadvantages of each. [25]

QUESTION 6

- (a) Highlight the basis for the movement of nutrients to the surface of plant roots. [7]

- (b) Discuss in detail the components of nutrient movement to the root surface and comment on the relative importance of each component for (i) mobile and (ii) immobile nutrients.

[18]