



1st SEM. 2007/2008

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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME: DIPLOMA IN AGRICULTURAL EDUCATION YEAR III

COURSE CODE : CP 202

TITLE OF PAPER : SOIL FERTILITY

TIME ALLOWED : TWO (2) HOURS

INSTRUCTIONS : ANSWER ANY FOUR (4) QUESTIONS

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THE CHIEF INVIGILATOR**

QUESTION 1

- (a) Give a basis for the concept of movement of nutrients to the root surface [5]
- (b) Discuss the components of the concept of mineral nutrient movement to the root surface indicating the type of nutrients important for each component [20]
(25 MARKS)

QUESTION 2

- (a) What is animal manure [5]
- (b) Discuss the role of animal manure in crop production [20]
(25 MARKS)

QUESTION 3

- (a) Outline the pools of potassium in soils and indicate the relative importance of each pool in the potassium nutrition of plants [10]
- (b) Discuss the factors which influence the availability of potassium to plants in soils [15]
(25 MARKS)

QUESTION 4

A fertilizer recommendation for maize production in the middleveld of Swaziland indicated the following:

N – 50 kg ha⁻¹

P – 45 kg ha⁻¹

K – 40 kg ha⁻¹

- (a) (i) Calculate the amount of the compound fertilizer, 2:3:2 (38) that is required to supply all the nitrogen required for optimum growth of maize [10]
- (ii) How much P and K would the quantity of the compound fertilizer obtained in (i) above supply? [10]
- (iii) What are the disadvantages of using compound fertilizers in supplying nutrients as indicated above? [5]
(25 MARKS)

QUESTION 5

(a) Discuss the soil fertility constraint in soils of your named country which is the major limiting factor in crop production [18]

(b) What remedial actions would you recommend to address this problem [7]
(25 MARKS)