UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

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| PROGRAMME: | DIPLOMA IN AGRICULTURE YEAR 2 |
| | DIPLOMA IN AGRICULTURAL EDUCATION YEAR 2 |
| | DIPLOMA IN HOME ECONOMICS YEAR 2 |
| | DIPLOMA IN HOME ECONOMICS EDUCATION YEAR 2 |
| | |
| COURSE CODE: | CP 201 |
| TITLE OF PAPER: | PRINCIPLES OF CROP PRODUCTION |
| TIME ALLOWED: | TWO (2) HOURS |
| | |
| INSTRUCTION: | ANSWER QUESTION ONE [1], WHICH IS A COMPULSORY QUESTION, AND ANY OTHER THREE QUESTIONS OF YOUR CHOICE [REGISTRAR TO PROVIDE ONE GRAPH SHEET OF PAPER TO EACH STUDENT] |

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## QUESTION 1

### (THIS IS A COMPULSORY QUESTION

Write, in DETAILS, on the following. Use examples to illustrate your answers, where possible. (Each question carries five marks).

(a)    Relay cropping system

(b)    Biofuel plants

(c)    Seed purity test

(d)    Compound fertilisers

[e]    From the data below, calculate accumulated degree days for field corn

during the period stated in the table below.

| Date | Minimum temperature ($^0$C) | Maximum temperature($^0$C) |
|------|-----------------------------|----------------------------|
| 2 August | 12 | 28 |
| 3 August | 14 | 29 |
| 4 August | 17 | 30 |
| 5 August | 18 | 33 |
| 6 August | 20 | 37 |
| 7 August | 22 | 33 |
| 8 August | 27 | 37 |
| 9 August | 29 | 38 |

(25 marks)

## QUESTION 2

Explain the differences between the following pairs of words

(Each answer carries 5 marks)

(a)    Critical leaf area index and optimum leaf area index

(b)    Cash crop and catch crop

(c)    Side dressing and top dressing

(d)    Pure crop seed and other crop seeds

(e)    Moisture content on wet-mass basis and moisture content on dry-mass

basis

( 25 marks)

(c)    Below are data of LAI from a *Cajanus cajan* trial at Luyengo. Draw a

graph for the data and interpret the result

| Plant density (plants/ha) | Days after planting | Leaf area index |
|---|---|---|
| 133,333 | 7 | 0.2 |
|  | 14 | 1.1 |
|  | 21 | 1.8 |
|  | 28 | 2.0 |
|  | 35 | 2.8 |
| 66,667 | 7 | 0.1 |
|  | 14 | 0.9 |
|  | 21 | 1.5 |
|  | 28 | 1.9 |
|  | 35 | 2.6 |
| 33,333 | 7 | 0.1 |
|  | 14 | 0.4 |
|  | 21 | 1.3 |
|  | 28 | 1.8 |
|  | 35 | 2.5 |

(9 Marks)

## QUESTION 5

Each question carries five (5) marks

(a)    You need 2000 cc of 0.1% concentration of TZ solution. How much

volume (cc) of 1% concentration of TZ solution would you need?

(b)    You wish to apply a compound fertiliser 2-3-2(22) at the rate of 400 kg/ha.

What method of application would you use? Give reasons for your choice

of method

(c)    Write briefly on seed health

(d)    List five cropping systems and discuss one of them

(e)    Write briefly on "El ñiño"

## QUESTION 3

All questions carry five marks each

(a)     List five disadvantages of kraal manure

(b)     List five characteristic of an ideal agroforestry tree

c)      A farmers wishes to apply 18.8 kg/ha of phosphorus to a bean crop. If the source of P is 2-3-2 (22). How many kg of the compound fertiliser will the farmer apply to meet the P requirement of the crop?

(d)     List five advantages of using green manure crop for crop production

(e)     With the aid of a diagram, show the relationship between the involvement of a researcher and a farmer in on-farm research

(25 Marks)

## QUESTION 4

(a)     List five indices of seed and seedling vigour and discuss one of them in detail.

( 6 Marks)

(b)     Explain why it is important to test seeds in a sterilised medium

(5 Marks)

(c)     Write briefly on the four components into which seedlings are classified during seed germination test

(5 marks)