2nd SEMESTER 2015/2016

UNIVERSITY OF SWAZILAND

MAIN EXAMINATION PAPER

PROGRAMME: BACHELOR OF SCIENCE IN AGRONOMY YEAR 3

COURSE CODE: CP 307

TITLE OF PAPER: FIELD EXPERIMENTATION

TIME ALLOWED: TWO (2) HOURS

INSTRUCTION: ANSWER QUESTIONS 1 AND 2, WHICH ARE COMPULSORY AND ANY OTHER TWO QUESTIONS OF YOUR CHOICE.

NOTE: STUDENTS SHOULD BE PROVIDED WITH GRAGH PAPERS

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QUESTION 1

(THIS IS A COMPULSORY QUESTION)

Below are maize yields of a two-factor experiment as affected by four sources of goat manure and three rates of each conducted in the Crop Production Department at Luyengo. The net plot was one row, 5.0 m long. The seed yields were expressed in g/net plot. Compute the seed yield [kg/ha] for the two main effects, draw a graph for each main effect as well as the interactions and interpret your results.

Table 1. Source of kraal manure, rates of goat manure and seed yield [g/plot]

Source of kraal manure	Rates of goat manure [tonnes/ha]	Seed yield [g/plot]
Highveld	0	839
Highveld	30	2255
Highveld	60	3994
Middlveld	0	622
Middleveld	30	4493
Middleveld	60	3734
Lowveld	0	954
Lowveld	30	2854
Lowveld	60	4486
Lubombo	0	645
Lubombo	30	2326
Lubombo	60	3538

[28 Marks]

QUESTION 2

(THIS IS ALSO A COMPULSORY QUESTION)

Write on the following terms/statements [a to g]. Each answer carries four marks.

[a] Neighbour effects in field experimentation.
[b] Factors affecting the number of replicates in an experiment.
[c] Laying out field experiments.
[d] Main plot and sub-plots.
[e] Randomisation.
[f] List 8 components of a proposal.
[g] Mean separation.

[28 marks]

QUESTION 3

Discuss research needs for maize cropping systems for integrated crop production in Swaziland.

[22 Marks]

QUESTION 4

List four experimental designs and discuss the advantages and the disadvantages of each. Use diagrams to illustrate your answer, where possible.

[22 marks]

QUESTION 5

Write a research proposal on " Effects of two maize varieties at five densities of each on growth, development and seed yield of maize"

[22 marks]