113

UNIVERSITY OF SWAZILAND

MAIN EXAMINATION PAPER

PROGRAMME: BACHELOR OF SCIENCE IN AGRONOMY YEAR 3

COURSE CODE: CPR 303

TITLE OF PAPER: FIELD EXPERIMENTATION

TIME ALLOWED: TWO (2) HOURS

INSTRUCTION: ANSWER ALL QUESTIONS

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

QUESTION 1

Write on the following [a to e]. Each answer carries five marks
[a]. Neighbour effects in field experimentation.
[b]. Experimental designs.
[c]. Concept notes.
[d]. Field surveys.
[e]. DMRT.

[25 Marks]

QUESTION 2

[a] List four types of experimental designs.

(8 marks)

[b] Give two advantages and two disadvantages of each design.

(8 marks)

[c] Which of the four experimental designs is mostly used in crop production experiments outdoors and why?

(9 marks)

[25 marks]

QUESTION 3

I. From the information below (a-g), complete the ANOVA table.
[a] Title: Effects of four maize varieties at five times of planting on seed yield.
[b] The researcher has no prior knowledge on the performance varieties nor of their response to time of planting.
[c] Number of replicates: 4
[d] Plot size: Five rows each 6 m long
[e] Inter- and intra-row spacing: As recommended for Luyengo community.
[f] Path between replicates is one metre wide
[g] There is no path between plots

[II]
[a] Calculate the area you will need for the experiment   (10 marks)
[b] Write a skeletal analysis of variance table using the information in I above, '
  Reproduce this table in your answer booklet].   (3 marks)

Source of variation	Degrees of freedom

[c] If the researcher wishes to apply 450 kg/ha of a compound fertiliser [2-3-2 (38)] and 25 kg/ha of nitrogen, how many grams of the compound fertiliser should the researcher apply per plant?

(6 Marks)

[d] If the source of nitrogen is LAN, how many grams of LAN should the researcher apply per plant?

(6 Marks)

[25 Marks]

QUESTION 4

What is the difference between the following pairs of words/terms. Use illustrations/examples where necessary. for your answers. Each question carries five marks.

[a] Net plot and gross plot
[b] Correlation and regression
[c] One factor and factorial experiments
[d] Completely randomized and randomized complete block design
[e] Replication and randomization

(25 Marks)