# UNIVERSITY OF SWAZILAND

## FINAL EXAMINATION PAPER

**PROGRAMME:** BACHELOR OF SCIENCE IN HORTICULTURE

YEAR III

**COURSE CODE:** HORT 305

**TITLE OF PAPER:** HORTICULTURAL EXPERIMENTATION

**TIME ALLOWED:** TWO (2) HOURS

**INSTRUCTION:** ANSWER ANY FOUR (4) QUESTIONS

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**INSTRUCTION: ANSWER ANY FOUR (4) QUESTIONS**

## Question 1

(a) What is research? [5 Marks]

(b) List the objectives of a research project. [10 Marks]

(c) What would you consider as the characteristics of good research? [10 Marks]

**[25 marks]**

## Question 2

A research proposal is an important component of successful research. Write a concise outline of your final year research project proposal.

**[25 marks]**

## Question 3

You have been directed to carry out a field experiment at the University of Swaziland, Luyengo Campus on the effects of different levels of nitrogen and phosphorus fertilizers on the growth and yield of two varieties of lettuce. The fertilizer treatments are 0, 30 and 60 kg N/ha and 0, 15 and 30 kg P/ha with three replications.

(a) Which experimental design will you use for this research and why? [7 Marks]

(b) List the different treatments for the experiment. [6 Marks]

(c) Sketch the ANOVA table for this experiment, indicating the estimates of the degrees of freedom. [12 marks]

**[25 marks]**

## Question 4

(a)What is an experimental design? [5 Marks]

(b) List the factors you will consider before choosing a design for a research project. [10 Marks]

(c) State the advantages and disadvantages of a **NAMED** experimental design. [10 marks]

**[25 marks]**

## Question 5

In a field experiment conducted to compare the yields of three green bean varieties in a complete randomised design replicated four times, the following yield results were obtained (kg/plot)

| **Cultivar** | **Rep 1** | **Rep 2** | **Rep 3** | **Rep 4** |
|---|---|---|---|---|
| **Angel** | 20 | 30 | 40 | 50 |
| **Malkerns** | 30 | 50 | 60 | 100 |
| **Uhuru** | 20 | 10 | 40 | 30 |

(a) Sketch the complete ANOVA table for this experiment [20 marks]

(b) Show the field layout of the experiment [5 Marks]

**[25 marks]**