

**NATIONAL UNIVERSITY OF LESOTHO**

**FACULTY OF AGRICULTURE**

**B.Sc. AGRICULTURE**

**CPS 3502: RESEARCH METHODOLOGY**

**JANUARY 2023**

**MARKS: 100**

**TIME: 3HRS**

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**INSTRUCTIONS: ANSWER ALL THE QUESTIONS**

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**Crop science, Soil science and general (70 members)**

**QUESTION 1 [15marks]**

Outline the procedure followed in conducting agricultural research. (15)

**QUESTION 2 [20 marks]**

Distinguish the following terms;

- a) research methods and methodology (2)
- b) descriptive and analytical research (2)
- c) applied, basic and adaptive research (3)
- d) quantitative and qualitative research (2)
- e) conceptual and empirical research (3)
- f) inductive, deductive and syllogistic reasoning (3)
- g) Structured, semi-structured and unstructured questionnaire (3)
- h) replication, treatment and parameter (3)

**QUESTION 3 [20 marks]**

Perform analysis of variance with data collected from the field where Randomized

Complete Block Design was applied.

Cultivars	Sorghum (yield/ ton)		
	Rep 1	Rep 2	Rep 3
PAN 6413	1.5	1.7	1.4
PAN 5681	3.9	4.2	3.8
Phi 324	2.2	2.7	2.9
CG4141	2.5	2.6	2.4
SNK 465	3.1	3.3	3.2
Cap	4.0	4.2	4.1

**Show calculations**

**QUESTION 4 [15 marks]**

- a) Transformation of data (5)
- b) Correlation of variables (5)
- c) Linear regression (5)

- d) Analysis of variance (5)
- e) Objectives of research (5)
- f) Motivation for conducting a research (5)

**QUESTION 5 [15 marks]**

Explain sampling techniques (random and non-random) used for carrying out a survey research (15)

**Good Luck**