



# MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF AGRICULTURAL SCIENCES

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

THIRD YEAR EMESTER TWO EXAMINATIONS FOR THE DEGREE OF  
BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION  
AEE 430: STATISTICAL AND RESEARCH METHODS IN AGED & EXTENSION

DATE: 8/12/2021

TIME: 8.30-10.30 AM

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**INSTRUCTION TO CANDIDATES: Answer ALL questions from Section A and any other TWO from Section B:**

**SECTION A: COMPULSORY**

**QUESTION ONE (30 MARKS)**

- a) Define a research problem (2 marks)
- b) Describe historical development of research under the following:
  - i. method of tenacity (4 marks)
  - ii. method of authority (4 marks)
  - iii. Priori method (4 marks)
- c) Explain FOUR sources of a research problem (4 marks)
- d) Describe THREE sources of information used to locate literature for a study. (3 marks)
- e) Differentiate between probability sampling methods and non-probability sampling methods (4 marks)
- f) Below are three sets of data. Find out the set with the largest Standard Deviation
  - i. 2,4,6,8,10
  - ii. 10,9,8,7,6,5,4,3,2,
  - iii. 2,6,12,50 (5 marks)

**SECTION B: ANSWER ANY TWO QUESTIONS FROM THIS SECTION**

**QUESTION TWO (20 MARKS)**

- a) Explain the FOUR steps in data processing (8 marks)
- b) Explain six ethical issues that should be considered when conducting research. (12 marks)

### QUESTION THREE (20 MARKS)

Table 1 shows students' scores in agriculture subject for their mock and KNEC exams

	student	Mock exam	KNEC exam
1	A	30	34
2	B	38	36
3	C	60	42
4	D	65	60
5	E	43	42
6	F	50	48
7	G	58	52
8	H	72	66
9	I	64	48
10	J	80	72

Calculate the correlation coefficient between the mock exam and the KNEC exam given that

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Show your working

### QUESTION FOUR (20 MARKS)

- Describe FIVE qualities of a well stated problem statement in a research proposal. (5 marks)
- Describe the components of a research report indicating the importance of each section (15 marks)

### QUESTION FIVE (20 MARKS)

- Explain FOUR ways of classifying research variables by suitable scale of measurement (8 marks)
- Describe three possible criteria that is used in classifying types of research. (12 marks)