



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

**FIRST YEAR FIRST SEMESTER UNIVERSITY EXAMINATION FOR THE DEGREE OF
MASTER OF SCIENCE IN FOOD SECURITY AND SUSTAINABLE AGRICULTURE**

2020/2021 ACADEMIC YEAR

REGULAR

COURSE CODE: AFB 5111

COURSE TITLE: Research Methods

EXAM VENUE: STREAM: MSc. Food Security and Sustainable Agriculture

DATE:15/2/21

EXAM SESSION:9-12.00 NOON

TIME: 3 HOURS

Instructions:

- 1. Answer question ONE and ANY other 2 Questions**
- 2. Candidates are advised to write on the text editor provided, or to write on a foolscap, scan and upload alongside the question**
- 3. Candidates must ensure they submit their work by clicking "finish and submit attempt" button at the end.**

1) a) You have developed three poultry feed substrates based on various insect fortification formulations to address the problem of feed quality in your locality.

- i) In no more than 10 words, formulate a study title for this research. **(2marks)**
- ii) In not more than 150 words describe the scale and scope of the problem justifying this intervention and approach. **(3marks)**
- iii) Construct 2 possible research question(s) to answer in this study **(2marks)**
- iv) Formulate the overall objective of this study **(1mark)**
- v) Formulate at least 2 specific objectives of the study **(2marks)**

b) You want to evaluate the three fortified feed substrates in question 1 based on their effects on the growth rate of layers, egg production and protein profile using a completely randomized design.

- i) Explain why you would choose CRD over other designs for this study? **(3 marks)**
- ii) Describe how you would control variances in the study? **(3marks)**
- iii) Formulate both null and alternative hypotheses for this study. **(2marks)**
- iv) Identify independent and dependent variables in this study. **(2marks)**

2) Assume you assigned 21 layers, 7 per feed substrate and obtained the following data on egg production from question 1:

Feed 1	Feed 2	Feed 3
40	56	87
89	67	88
65	48	76
57	69	91
50	45	74
68	106	83
97	54	96

- a) Showing your steps, construct one way ANOVA table and conduct and F-test. **(15 marks)**
- b) What does $P < 0.05$ level of significance mean? **(1mark)**
- c) If you obtained this level of significance in this study explain what this would mean in relation to the null hypothesis.

(4 marks)

3) You are interested in finding out potential level of acceptance of your newly developed poultry feeds in question 1 by farmers in your locality. You are going to use a self-report questionnaire.

- a) Construct a research question for this study. **(2marks)**
- b) Suggest one open and one closed question that could be used for this study. **(4marks)**
- c) Compare and contrast the use of open and closed questions in this study. **(8marks)**
- d) Suggest how you would identify a random sample to complete the questionnaire. **(2marks)**
- e) Explain why you chose this sampling technique. **(4 marks)**

4) Your feed formulation project in question 1 seems to be very successful and you are interested in finding out the level of adoption and impact in your intervention area. You are going to use purposive sampling techniques.

- a) Explain why you have chosen to use purposive sampling over other techniques. **(4marks)**
- b) Explain how you will deal with potential response biases. **(6marks)**
- c) Briefly discuss one ethical issue in relation to this study. **(4 marks)**
- d) Briefly explain steps you would take to publish your results. **(6marks)**