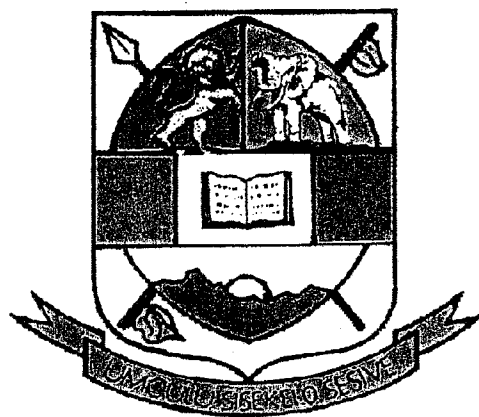


71



UNIVERSITY OF SWAZILAND

2nd SEM. 2014/2015

FINAL EXAMINATION PAPER

PROGRAMMES: B.Sc. ANIMAL SCIENCE YEAR 3

B.Sc. ANIMAL SCIENCE (DAIRY OPTION) YEAR 3

COURSE CODE: AS 308

TITLE OF PAPER: RESEARCH METHODS

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS

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

QUESTION 1

- a) Define the term research. (5 Marks)
- b) List **five** key characteristics of a research activity. (5 Marks)
- c) First list and then briefly explain **five** reasons for carrying out research. (15 Marks)

QUESTION 2

- a) With the aid of an example explain the term confounding variable. (4 Marks)
- b) Discuss the “grey” area between basic/fundamental and applied research. (6 Marks)
- c) Discuss the **two** main risks that are associated with sampling and where possible suggest ways to minimise these risks. (15 Marks)

QUESTION 3

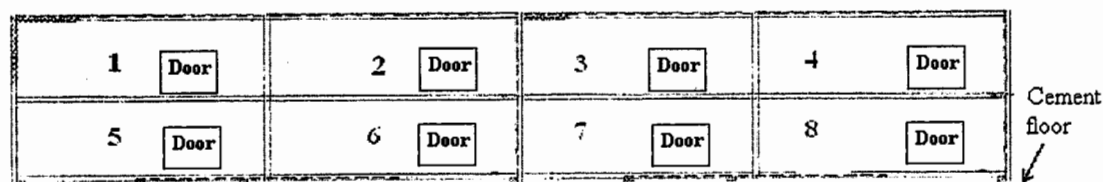
- a) What are the **five** characteristics of a good research problem statement? (10 Marks)
- b) **List** and then briefly **discuss three** probability sampling methods. (9 Marks)
- c) Briefly discuss the following: (3 Marks)
- Specific objectives. (3 Marks)
 - Research significance. (3 Marks)

QUESTION 4

- a) Time, destructiveness of the observation/data collection process and accuracy are some of the reasons cited for using samples. Separately explain each of these. (15 Marks)
- b) Write notes on completely randomised designs making sure to cover aspects of description of the design, randomization of experimental units, advantages and disadvantages of this design. (10 Marks)

QUESTION 5

A group of second year students at UNISWA approach you seeking help to design an experiment for their Principles of Genetics (AS 204) course. They have 20 male mice of genotype “KG” and another 20 male mice of genotype “QZ”. All the mice are the same age and are of similar weights. They also have two mice diets “Control” and “Experimental”. Their objective is to determine if there are statistically significant differences due to diet and mice genotype on weekly weights to be collected over a six week period. The schematic below shows the arrangement of the cages. The cages are arranged one row above the other and each cage can accommodate 5 mice and has feeding and watering facilities. Answer the questions on the next page.



- a) What experimental design would you suggest for them to use? (2 Marks)
- b) Are there any replications in the suggested design? If yes, state how many. (4 Marks)
- c) Clearly explain how the diets and mice will be assigned to the cages. (6 Marks)
- d) What is the experimental unit in your suggested design? (4 Marks)
- e) State null and alternate hypotheses for this study. (4 Marks)
- f) What statistical test/s would you suggest they would most likely need to perform for their data analysis step? (5 Marks)