Uganda Martyrs University
Faculty of Agriculture

Final Examination 2017-2018
Bachelors of Science in Agriculture Year One
Bachelors of Science in Organic Agriculture Year One

Module: BSAG 1205: Research and Statistical Methods
BSEOA 1207: Participatory Action Research

Time: 2:00 pm – 5:00 pm Date: Wednesday 18th July, 2018

Instructions:

- *Attempt ALL questions in Section A plus any TWO questions from Section B.*
- *Use well labeled illustrations wherever applicable.*
- *All questions carry equal marks*

SECTION A: Attempt all questions in this section.

Question 1:
Indicate whether the statement is "**TRUE**" or "**FALSE**". **(2½ marks each)**

a) Research involves three main steps: pose a question, collect data to answer the question, and present an answer to the question.
b) A specific objective should both be measurable and achievable.
c) If in a particular study, the level of significance (α) is set at 5%, it implies that the researcher wants to be 95% confident when estimating a population parameter.
d) It is agreeable that "determining the relationship between seedling vigour and grain yield in sorghum" is a correlational study.
e) A feasibility study is an example of explanatory research.
f) A study is considered quantitative if you want to quantify the variation in a phenomenon, situation, problem or issue; if information is gathered using predominantly quantitative variables; and if the analysis is geared to ascertain the magnitude of the variation.
g) Percentages, frequencies, pie-charts and bar graphs are common descriptive statistics/graphs for quantitative variables.
h) A hypothesis is a tentative answer to a research question, and the hypothesis is associated to a specific objective or research question.
i) One of the attributes of research is that it is *systematic* in that whatever you conclude on the basis of your findings is correct and can be verified by you and others.
j) The main function of formulating a research problem is to decide what you want to find out about.

Question 2:

a) Discuss five considerations when formulating a research problem. **(10 marks)**

b) Make reference to your proposed research area and answer the following questions.

(i) State a title for your proposed research. **(1 1/2 mark)**

(ii) Write down a main objective of your proposed study. **(1 1/2 mark)**

(iii) Write down two research questions to which you want to find answers. **(4 marks)**

(iv) State two specific objectives associated with your research questions. **(4 marks)**

(v) State two scientific hypotheses associated with your specific objectives. **(4 marks)**

Section B: Answer any two questions

Question 3:

Using an example of your own proposed research, explain the difference between a theoretical framework and a conceptual framework. **(25 marks)**

Question 4:

a) What do understand by the term 'variable'? **(5 marks)**

b) With an example in each case, distinguish between the following types of variables. (5 marks each)

(i) Independent and dependent

(ii) Connecting and extraneous

(iii) Active and attribute

(iv) Quantitative and qualitative

Question 5:

(a) Distinguish between a survey and an experiment. **(5 marks)**

(b) State the conditions under which the following experimental designs may be appropriate for use by an agricultural researcher. **(5 marks each)**

(i) Completely randomized design

(ii) Randomized complete block design

(iii) Latin square design

(iv) Split-plot design

Question 6:

a) Distinguish between primary and secondary data. **(5 marks)**

b) Discuss the various methods of primary data collection. **(20 marks)**

Question 7:

Write short notes on the following probability sampling techniques. **(5 marks)**

(a) Simple random sampling

(b) Stratified sampling

(c) Systematic sampling

(d) Cluster sampling

(e) Hierarchical sampling

Question 8:

(a) What is an 'ethical issue' in research? **(5 marks)**

(b) Discuss five ethical issues that should be considered when conducting a research process. **(20 marks)**

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