

# Uganda Martyrs University

## Faculty of Agriculture

Final Examination 2021-2022

Bachelors of Science in Agriculture Year One

Bachelors of Science in Ecological Organic Agriculture Year Three

**Module BSAG 1205: Research and statistical methods**  
**BSEOA 1207: Participatory Action Research**

Time: 09:30am – 12:30 pm Date: Saturday 06<sup>th</sup> August 2022

### **Instructions:**

- i. Attempt four questions **QUESTION 1 IS COMPULSORY**
- ii. Each question carries 25 marks
- iii. Duration of the exam is three (3) hours

### **Question 1:**

Your District Council has called for proposals for funding to support a project to be identified by the unemployed youth in your parish of operation:

- a) State and briefly explain the main sections of a research proposal (5 marks)
- b) Explain how you would arrive at a possible project for the said youth (5 marks)
- c) State two typical objectives of the said project and how you would go about collecting relevant and analyzing data on the stated objectives (08 marks)
- d) Briefly describe the elements of the report you would provide to the District Council after implementing the funded project (07 marks)

### **Question 2:**

A conceptual framework illustrates what you expect to find through your research. It defines the relevant variables for your study and maps out how they might relate to each other.

- a) State the difference between:
  - i. Independent and dependent variables (4 marks)
  - ii. Mediating variable and moderating variable (4 marks)
- b) Consider a research project seeking to convince farmers to adopt a new variety of maize among male and female farmers.

- i. Develop a possible conceptual for such a project (5 marks)
- ii. Describe a simple experiment to meet stated objectives (5 marks)
- iii. What data will you collect to answer your objectives (3 marks)
- iv. State your underlying hypothesis (4 marks)

**Question 3:**

Every research activity involves collection of data of some sort. It is from this data that decisions are made regarding the research question.

- a) What are data and how important are data in research (5 marks)
- b) With examples, differentiate between:
  - i. Nominal and ordinal data (6 marks)
  - ii. Qualitative and quantitative data (4 marks)
  - iii. Continuous and discrete data (4 marks)
- c) Describe three ways in which processed data can be presented (6 marks)

**Question 4:**

Research is conducted to generate insight into problems affecting communities so that solutions are recommended.

- a) Describe two ways you can use to identify problems affecting a smallholder agricultural community (5 marks)
- b) You are deployed as an Agricultural Extension Officer in a landslide-prone sub-county in Mbale district. Explain how you would use your research skills to convince farmers and other stakeholders to invest in soil and water conservation practices (10 marks)
- c) Using a problem tree analysis tool, illustrate how you can identify the causes and effects of soil erosion in the sub-county mentioned in (b) above (05 marks)
- d) From the objective tree above generate an objective tree (05marks)

**Question 5:**

- a) Describe five steps in literature review (10 marks)
- b) State why literature review is an important component of a research proposal (5 marks)
- c) State three sources of literature and their limitations (10 marks)

**Question 6:**

Statistical methods and techniques are a critical component of research. Explain the meaning and importance of the following statistical terms as applied in research

- a) Random sampling (5 marks)
- b) Measures of central tendency (5 marks)
- c) Measures of variability (5 marks)
- d) Hypothesis testing (5 marks)
- e) Normal frequency distribution (5 marks)



**Question 7:**

Participatory Action Research (PAR) is considered to be the most appropriate research to transform rural livelihoods.

- a) What is Participatory Action Research (PAR) (4 marks)
- b) Explain three of the characteristics of PAR (9 marks)
- c) Elaborate on three of the principles of PAR (6 marks)
- d) With an example of a typical project, illustrate how you as an extension worker would facilitate participatory action research in your area of work (6 marks)

**Question 8:**

In participatory Action Research (PAR), a transect walk is one of the most important planning tools.

- a) Explain what a transect walk is (2 marks)
- b) State and explain the importance of four materials you need to conduct a transect walk (8 marks)
- c) Describe four reasons why a transect walk is conducted (8 marks)
- d) State the advantages and disadvantages of the transect walk technique in PAR (7 marks)