



**FACULTY OF SCIENCE AND TECHNOLOGY**  
**END OF SEMESTER EXAMINATIONS - APRIL 2025**

**PROGRAMME: BSEM**

**YEAR/SEM: YEAR 2/SEMESTER 2**

**COURSE CODE: RES2203**

**NAME: RESEARCH METHODS AND DATA MANAGEMENT**

**DATE: 2025-04-15**

**TIME: 9:00AM-12:00PM**

**INSTRUCTIONS TO CANDIDATES:**

1. Read the instructions very carefully
2. The time allowed for this examination is STRICTLY three hours
3. Read each question carefully before you attempt and allocate your time equally between all the Sections
4. Write clearly and legibly. Illegible handwriting cannot be marked
5. Number the questions you have attempted
6. Use of appropriate workplace examples to illustrate your answers will earn you bonus marks
7. Any examination malpractice detected will lead to automatic disqualification.

**DO NOT WRITE ANYTHING ON THE QUESTION PAPER**

## Section A Attempt only one question from this section

### Question 1:

Urban wetlands in Kampala are critical for flood control and water purification but are being degraded by industrial pollution and encroachment. A local NGO wants to assess the effectiveness of existing wetland conservation policies.

1. a) Develop three **research objectives** and **questions** for this study. (10 marks)
2. b) Recommend a **sampling strategy** to collect data from households and industries. Justify your choice. (10 marks)
3. c) Describe **three data collection tools** (e.g., surveys, water quality tests) and explain their relevance. (10 marks)
- d) How would you communicate findings to policymakers to advocate for stronger regulations? Outline a strategy. (10 marks)

## Section B Attempt only three (3) questions from this section

### Question 1:

- a) Define **null hypothesis** and **alternative hypothesis**. (10marks)
- b) Formulate hypotheses for a study on plastic pollution in Lake Victoria. (10marks)

### Question 2:

- a) Outline the structure of a research report. (10marks)
- b) Why is clarity important when presenting statistical results? (10marks)

### Question 3:

- a) Explain **Likert scales** and their application in environmental surveys. (10marks)
- b) Critique the limitations of closed-ended questionnaires. (10marks)

### Question 4:

- a) Describe **descriptive statistics** and their role in environmental research. (10marks)
- b) Use an example to illustrate how **regression analysis** could predict deforestation rates. (10marks)

### Question 5:

- a) List **five key components** of a research proposal. (10marks)
- b) Why is a literature review vital for proposal development? (10marks)

### Question 6:

- a) Compare **experimental** and **observational research designs** in environmental studies. (10marks)
- b) Which design is more suitable for studying climate change impacts in Uganda? Justify. (10marks)