



KISII UNIVERSITY
UNIVERSITY EXAMINATIONS

**FIRST YEAR EXAMINATION FOR THE AWARD OF DEGREE OF MASTER
OF SCIENCE IN BIOMEDICAL SCIENCES
FIRST SEMESTER, 2023/2024
(MAY-AUGUST, 2024)**

MBSC 820- ADVANCED RESEARCH METHODOLOGY

STREAM: Y1S1

TIME: 3 HOURS

DAY: THURSDAY, 12.00PM-3.00PM

DATE: 15/08/2024

INSTRUCTIONS

- 1. Do not write anything on this question paper.***
- 2. Answer question one and any other two questions.***

QUESTION ONE

- Explain the importance of sample size in research and discuss factors that influence sample size determination. [5 marks]
- Define instrumentation in research and elaborate types of instruments used in data collection. [5 marks]
- Describe the process of validating instruments in research and discuss the types of validity that researchers consider. [5 marks]
- How do research objectives contribute to the overall success of a study? Provide an example of a SMART research objectives. [5 marks]
- Discuss the steps involved in conducting a literature review and explain the concept of critical appraisal in research. [5 marks]
- Compare and contrast probability sampling with non-probability sampling methods in research. [5 marks]

QUESTION TWO-20 MARKS

- a) Explain the concept of data collection and management in research, highlighting their significance in the research process. [5 marks]
- b) Differentiate between various types of models used in modeling and simulation in research. [5 marks]
- c) Explain how computer software can aid in data analysis, modeling, simulation, and data management in research projects. [5 marks]
- d) Discuss the relevance, contribution, and feasibility aspects of a research study in the context of advancing existing knowledge. [5 marks]

QUESTION THREE-20 MARKS

- a) Define the scope of a research study and explain how it influences the research process. [5 marks]
- b) Formulate research questions and discuss the different types of research questions that can guide a study. [5 marks]
- c) Elaborate on the formulation of hypotheses in research and discuss the types of hypotheses that researchers commonly use. [5 marks]
- d) Evaluate the importance of justifying and providing a rationale for a research study. [5 marks]

QUESTION FOUR-20 MARKS

- a) Analyze the role of sampling in research and its impact on the generalizability of study findings. [5 marks]
- b) Discuss the significance of critical appraisal in evaluating the validity, reliability, and relevance of research findings. [5 marks]
- c) Explain the concept of data modeling and simulation and provide examples of their applications in research. [5 marks]
- d) How can the use of computer software enhance the efficiency and accuracy of data analysis in research projects? [5 marks]

QUESTION FIVE-20 MARKS

- a)Elaborate on the process of synthesizing findings from multiple studies during a literature review. [4 marks]
- b)Discuss the selection criteria for instruments used in data collection and their importance in ensuring research quality. [4 marks]
- c)Explain the concept of reliability testing in research and its significance in ensuring the consistency of research results. [4 marks]
- d)Discuss the types of models commonly used in research and their applications in medical field. [4marks]
- e)How does the research conducted contribute to advancing existing knowledge in the field of study? [4marks]