



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## UNIVERSITY EXAMINATIONS 2023/2024

THIRD YEAR, SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN STATISTICS, BACHELOR OF SCIENCE IN MATHEMATICS AND COMPUTER SCIENCE IN MATHEMATICS AND COMPUTER SCIENCE

AND

FOURTH YEAR, SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE MATHEMATICS AND COMPUTER SCIENCE AND BACHELOR OF SCIENCE IN MATHEMATICS

**SMS 3356/ SMA 3356: RESEARCH METHODOLOGY/RESEARCH METHODS**

**DATE: APRIL 2024**

**TIME: 2 HOURS**

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**INSTRUCTIONS: Answer Question ONE and any other TWO questions.**

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### QUESTION ONE (30 MARKS)

- a) "The government of Kenya through a task force on Education has introduced a change on current National Education Model to a Competency Based curriculum (CBC)" This education model has come with a lot of changes on content delivery, duration and levels of study. Many education stakeholders have highlighted challenges the model has encountered in the early stages of its adoption. These range to the tutors training, resources, preparedness, stakeholders' acceptance among others."
- Conceptualize the above as a researchable problem and write a research topic as well as a brief problem statement. (5 Marks)
  - From i), derive three specific research objectives. (3 Marks)
  - Describe the research design you would approach to carry out this research (3 Marks)



MUST is ISO 9001:2015 and



ISO/IEC 27001:2013 CERTIFIED

- b) Describe the scientific method for designing research (3 Marks)
- c) Highlight three strategies that are helpful in identifying a research problem (6 Marks)
- d) i. Distinguish between validity and reliability of measurement instruments (4 Marks)
- ii. Discuss three type of validity in research article (6 Marks)

**QUESTION TWO (20 MARKS)**

- a) Highlight the importance of pilot study in research work (6 Marks)
- b) Discuss the structure of research proposal (9 Marks)
- c) Outline the purpose of research proposal (5 Marks)

**QUESTION THREE (20 MARKS)**

- a) Briefly Illustrate how a research article should be read (6 Marks)
- b) Explain two utilities of a research (2 Marks)
- c) State four criteria of writing reports (4 Marks)
- d) Compare and contrast quantitative and qualitative methodology in research (8 Marks)

**QUESTION FOUR (20 MARKS)**

- a) Discuss the ethical consideration you would consider when carrying out research (6 Marks)
- b) Discuss random sampling Techniques (8 Marks)
- c) State three characteristics and three functions of a good research hypothesis (6 Marks)

**QUESTION FIVE (20 MARKS)**

- a) Explain the research design and highlight two main functions of research designs (6 Marks)
- b) Discuss ways to improve s presentation of a research findings (6 Marks)
- c) Distinguish between descriptive and inferential analysis when carrying out data analysis for research work. (4 Marks)
- d) Distinguish between basic and applied research. (4 Marks)

