

210



**MASINDE MULIRO UNIVERSITY OF SCIENCE AND
TECHNOLOGY (MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR**

REGULAR EXAMINATIONS

**FOR THE DEGREE
OF
BACHELOR OF SCIENCE (COMPUTER SCIENCE,
INFORMATION TECHNOLOGY & ISKM)**

COURSE CODE: BCS 222/BIT 223

**COURSE TITLE: RESEARCH METHODS & TECHNICAL
WRITING**

DATE: 12/04/2023

TIME: 08:00-10:00AM

INSTRUCTIONS TO CANDIDATES

Answer Questions ONE and ANY OTHER TWO.

TIME: 2 HOURS

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 3 Printed Pages. Please Turn Over. ►

QUESTION ONE- 30 MARKS [COMPULSORY]

- a. Explain the meaning and significance of a Research design. **4 Marks**
- b. Identify a researchable problem in your core area of study; using your knowledge in research, briefly do chapter one of the study. Be certain to include all the components of the chapter. **10 Marks**
- c. Differentiate between the following common research concepts
 - i) Reliability and validity **3 Marks**
 - ii) Null and Alternative Hypothesis **3 Marks**
 - iii) Depended and Independent variable **3 Marks**
 - iv) Limitation and Delimitation **3 Marks**
- d. Differentiate between primary and secondary data as they are applied in research. **4 Marks**

QUESTION TWO (20 MARKS)

- a. Explain the meaning of the following in context of Research.
 - i. Extraneous variables; **2 Marks**
 - ii. Confounded relationship; **2 Marks**
 - iii. Research hypothesis; **2 Marks**
- b. Why is probability sampling generally preferred in comparison to non-probability sampling? **3 Marks**
- c. Explain the procedure of selecting a simple random sample. **4 Marks**
- d. Briefly explain the circumstances in which stratified random sampling design is considered appropriate? **3 Marks**
- e. How would you select such sample? Explain by means of an example **4 Marks**

QUESTION THREE (20 MARKS)

- a. Examine the merits and limitations of the observation method in collecting data. Illustrate your answer with suitable examples **7 Marks**
- b. How does the case study method differ from the survey method? Analyze the merits and limitations of case study method in sociological research. **8 Marks**
- c. State the key Steps in the Formulation of Research Problem. **5 Marks**

QUESTION FOUR (20 MARKS)

- a. Discuss interview as a technique of data collection. **5 Marks**
- b. Distinguish between an experiment and survey as methods of data collection. **4 Marks**
- c. Describe the “task of interpretation” in context of research Methodology **5 Marks**
- d. “Research design in exploratory studies must be flexible but in descriptive studies, it must minimize bias and maximize reliability.” Discuss. **6 Marks**

QUESTION FIVE (20 MARKS)

- a. Due to rapid change in technology, Computers have become part of human lifestyle right from communication, education, management, research just to mention a few. This trend that has embraced technology in the day today's transactions has come along with some challenges which researchers need to establish and address.

Required

- i) Identify and formulate a research problem in the area of computer science that you think has brought challenges due to rapid change in technology. **2 Marks**
 - ii) Give a clear statement of the research problem formulated in (i) above **2 Marks**
 - iii) State three specific objectives for your study **3 Marks**
 - iv) State with reasons TWO instruments used in collecting data for this study **2 Marks**
 - v) Formulate a hypothesis or two research questions for the this study **2 Marks**
- b. Discuss the factors that you would take into account when choosing a research problem and designing a study to address the identified problem. **9 Marks**

