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(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY REGULAR EXAMINATIONS

2021/2022 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS

YEAR ONE SEMESTER ONE

**FOR THE DEGREE OF MASTER OF
SCIENCE IN COMPUTER SCIENCE**

COURSE CODE: MIT 815

**COURSE TITLE: RESEARCH METHODS
IN COMPUTING**

DATE: 2/10/2022 TIME: 9.00 A.M – 11.00 A.M

INSTRUCTIONS TO CANDIDATES

ANSWER ANY THREE (3) QUESTIONS

QUESTION ONE [20 MARKS]

- a. Differentiate between the following;
- i) Research methodology and research methods
 - ii) Stratified sampling and simple random sampling. [4 marks]
- b. A researcher is interested in finding out why students at a certain university have decided to study computer software. He is going to use a self-report questionnaire.
- i) Construct a research question for this study. [3marks]
 - ii) Suggest **one** open and **one** closed question that could be used to investigate subject choice. [4marks]
 - iii) Explain one strength in using closed questions in this study. [3marks]
 - iv) Explain one weakness in using closed questions in this study. [3marks]
 - v) Suggest how the researcher could use a simple random sampling technique to get 50 computer science students to complete the questionnaire. [3marks]

QUESTION TWO [20 MARKS]

- a. Distinguish between primary and secondary data sources as used in research work. [9marks]
- b. You wish to undertake a research on how the computer technology has changed over the years until present.
- i) Outline how you would undertake this research; [5marks]
 - ii) Identify the possible data sources, classify them as either primary or secondary [3marks]
 - iii) How you would collect the data, and if secondary, give the source organization. [3marks]

QUESTION THREE [20 MARKS]

- a) Explain 5 factors you would consider before making a choose between exploratory survey and experimentation in a particular computer science research project. [10marks]
- b) What points should a researcher consider when developing a sample design for his project? [5marks]
- c) What are the factors that one should consider when deciding on a data collection method to adopt for his study? [5marks]

QUESTION FOUR [20 MARKS]

- a) Research approaches are divided into qualitative, quantitative, and mixed methods. Explain what these approaches are and what are research purposes that they serve? [9marks]
- a) What do you understand by the term “research process”? With the aid of a diagram, describe exhaustively what the research process involves. [11marks]

QUESTION FIVE [20 MARKS]

- a) Using practical examples elaborate the difference between dependent, independent and intervening variables in research [10marks]
- b) Describe cross-sectional research and longitudinal research and use practical examples in the area of computer science to distinguish them. [10marks]