



ZIMBABWE EZEKIEL GUTI UNIVERSITY

**FACULTY OF SCIENCE, TECHNOLOGY, AGRICULTURE &
FOOD SYSTEMS DEVELOPMENT**

DEPARTMENT OF DIGITAL TECHNOLOGY

EXAMINATION PAPER

COURSE CODE : BIS214
COURSE TITLE : Research Methods for Computing and Technology
SPECIAL REQUIREMENTS : None
DURATION : 3 Hours
LEVEL : 2.2
DATE : 2024

13 JUN 2024

INSTRUCTIONS TO CANDIDATES:

1. The question paper has 5 questions.
2. Answer any 4 questions.
3. Each question carries 25 marks

Question 1

- a. What is the difference between a population and a sample? [5]
- b. Explain **three** advantages and **two** disadvantages of sampling during data collection. [10]
- c. Discuss the **two** main sampling techniques. [5]
- d. Outline **five** situations when large samples may be required [5]

Question 2

- a. What is a hypothesis and what its importance is in research [5]
- b. Define the following terms
 - i. Alternative hypothesis [3]
 - ii. Dependent variable [3]
 - iii. Independent variable [2]

Young lecturers at a certain college, Miss Tshabangu and Mr Muwunganirwa, think that they use the best method to teach their students. Each lecturer has 50 statistics students who are studying a graduate degree in management. In Miss Tshabangu's class, students have to attend one lecture and one seminar class every week, whilst in Mr Muwunganirwa's class students only have to attend one lecture. Miss Tshabangu thinks that seminars, in addition to lectures, are an important teaching method in statistics, whilst Mr Muwunganirwa believes that lectures are sufficient by themselves and thinks that students are better off solving problems by themselves in their own time. This is the first year that Miss Tshabangu has given seminars, but since they take up a lot of her time, she wants to make sure that she is not wasting her time and that seminars improve her students' performance.

Given the scenario above, you are then tasked to carry out a quantitative research which will determine of the two teaching methods is more effective, than the other, the one with the seminar or no.

- c. Determine the following referring to the scenario above
- i. Dependent variable [3]
 - ii. Independent variable [3]
 - iii. Null Hypothesis [3]
 - iv. Alternative hypothesis [3]

Question 3

Discuss ethical issues related to information systems research work. Include ways of handling them. [25]

Question 4

- a. What is data analysis [3]
- b. What are the purposes of data analysis? [5]

c. Define the following types of data analysis

- i. Exploratory [3]
- ii. Quantitative [3]
- iii. Descriptive [3]

d. Quantitative and qualitative research methods are the among the mostly commonly applied research methods. Describe each of these two research methods in detail and give examples of how you will apply qualitative and quantitative research methods in typical research situations of your own making.

[8]

Question 5

- a. What is bias in relation to research? [3]
- b. Discuss the following types of research bias
 - i. Data collection bias [4]
 - ii. Selection or participant bias [4]
 - iii. Self-selection or volunteer bias [4]
- c. How can bias be reduced, use different situations in your response.

[10]

End of Paper

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