



ZIMBABWE

EZEKIEL GUTI

UNIVERSITY

FACULTY OF HEALTH, SCIENCE AND TECHNOLOGY

DEPARTMENT OF DIGITAL TECHNOLOGY

EXAMINATION PAPER

COURSE CODE : CDT 207
COURSE TITLE : Research Methods for Computing and Technology
SPECIAL REQUIREMENTS : None
DURATION : 3 Hours
LEVEL : 2.2
DATE : 2021

INSTRUCTIONS TO CANDIDATES:

1. The question paper has 5 questions.
2. Answer any 4 questions.

Question 1

Two statistics lecturers, Zoli and Themba, 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 Zoli's class, students have to attend one lecture and one seminar class every week, whilst in Themba's class students only have to attend one lecture. Zoli thinks that seminars, in addition to lectures, are an important teaching method in statistics, whilst Themba 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 Zoli 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.

- a. Define the following terms
 - a. Null hypothesis [3]
 - b. Alternative hypothesis [3]
 - c. Dependent variable [3]
 - d. Independent variable [3]
- b. Determine the following referring to the scenario above
 - a. Dependent variable [3]
 - b. Independent variable [3]
 - c. Null Hypothesis [3]
 - d. Alternative hypothesis [4]

Question 2

- a. Define the following terms
 - i. Sample [2]
 - ii. Population [2]
- b. Under what circumstances would you recommend the application of
 - i. Simple random sampling [3]
 - ii. Stratified random sampling [3]
 - iii. Stratified sampling [3]
 - iv. Cluster sampling [3]
- c. Explain the situations when you have to collect the data from a population [5]
- d. Explain the situations when you have to collect the data using a sample [4]

Question 3

- a. What is bias in relation to research? [3]
- b. Discuss the following types of research bias [4]
 - i. Data collection bias [4]
 - ii. Selection or participant bias [4]
 - iii. Self-selection or volunteer bias [4]
- c. How can bias be avoided, use different situations in your response. [10]

Question 4

Suppose you are working on an article stating that children in Zimbabwe watch an average of 3 hours of Television per week.

- a. How will you collect data in this research [4]
- b. Distinguish between [4]
 - i. Data and information [4]
 - ii. Primary and secondary data [4]
- c. Briefly explain the following data collection methods, mentioning when they are used [3]
 - i. Experiment [3]
 - ii. Survey [3]
 - iii. Interview [3]
 - iv. Ethnography [4]

Question 5

- a. What do you understand by research [2]
- b. Explain its significance in modern times [5]
- c. Explain simulation research [3]
- d. What are the benefits of using simulation modelling research techniques [9]
- e. What is the difference between research methods and research methodology [6]