JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF MATHEMATICS AND ACTUARIAL SCIENCE
UNIVERSITY EXAMINATION FOR DIPLOMA IN APPLIED STATISTICS
2ND YEAR FIRST SEMESTER 2023/2024
REGULAR (MAIN)

COURSE CODE: WAB 2215

COURSE TITLE: ELECTRONIC DATA COLLECTION AND MANAGEMENT

EXAM VENUE: **STREAM: DIPLOMA IN APPLIED STATISTICS**

DATE: **EXAM SESSION:**

TIME: 3.00 HOURS

Instructions:

1. **Answer question 1 (Compulsory) and ANY other 2 questions**
2. **Candidates are advised not to write on the question paper.**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room.**

QUESTION ONE (30 MARKS)

a) Explain the importance of printing in data collection and provide practical examples of its use in research. Discuss any challenges that may arise. (6 marks)

b) Describe the concept of random sampling, its advantages, and when it is practical to use in research. Provide a practical example from Kenyan healthcare research where random sampling would be appropriate. (6 marks)

c) Explain the significance of using strata in sampling. Provide a Kenyan scenario where stratified sampling would be valuable and describe how it would be implemented. (2 marks)

d) List and Explain data collection techniques: (10 marks)

e) Explain the methods and considerations for storing data source files in research (6marks)

QUESTION TWO (20 MARKS)

a. Explain the process of preparing a code book for coding variables in a research study. Use a practical scenario to justify your answer. (10 marks)

b. Explain the process of performing data clean-up in a research study. Use a practical scenario (10 marks)

QUESTION THREE (20 MARKS)

a. Explain the process of entering research data and uploading it to servers in a research study. (14 marks)

b. Describe the systematic sorting process's significance in data collection. Provide a step-by-step guide with practical Kenyan examples. (6 marks)

QUESTION FOUR (20 MARKS)

Agatha is a dedicated researcher working on a health assessment project in rural Bondo, Siaya County, Kenya. She is tasked with collecting vital health data from local clinics, including JOOUST, BONDO, and UYOMA clinics, focusing on patient demographics, medical history, and treatment outcomes. The region often experiences limited internet access.

a) Explain the data capture methods that Agatha can employ to efficiently collect health data from local clinics in rural Bondo. (5 marks)

b) Discuss the advantages and disadvantages of both offline and online data entry methods in the context of Agatha's health assessment project, considering the challenges posed by limited internet connectivity. (5 marks)

c) Agatha must ensure that the data she collects is accurately integrated and securely stored on a central server. Outline the necessary steps she should follow to achieve this, taking into account the merging and integration of data from JOOUST, BONDO, and UYOMA clinics. (5 marks)

d) Agatha has heard about the Open Data Kit (ODK) platform and its potential benefits. Explain how ODK could enhance data capture and management in her health assessment project, especially in the context of Bondo's rural clinics and connectivity challenges. (5 marks)

QUESTION FIVE (20 MARKS)

Brainard is a researcher planning a study to assess the fishing practices and livelihoods of communities in Siaya County, Kenya. He aims to select a representative sample of fishing villages to gather comprehensive data. Brainard is exploring various sampling methods to ensure his sample accurately represents the diversity of fishing communities in Siaya County.

a) Explain the concept of "systematic sampling" and how Brainard could use it to select a representative sample of fishing villages in Siaya County. (4 marks)

b) Discuss the advantages and limitations of "lottery sampling" in Brainard's study of fishing communities. (8 marks)

c) Brainard is interested in using "stratified sampling" to ensure diversity in his sample. Describe the steps he should take to implement stratified sampling in Siaya County, considering the different types of fishing communities (e.g., lakeside, riverside) present in the region. (8 marks)