JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF BIOLOGICAL, PHYSICAL, MATHEMATICS AND ACTUARIAL SCIENCE

UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF SCIENCE ACTUARIAL

3RD YEAR 2ND SEMESTER 2021/2022 ACADEMIC YEAR

REGULAR (MAIN)

COURSE CODE: WAB 2320

COURSE TITLE: RESEARCH METHODOLOGY

EXAM VENUE: **STREAM: (BSc. Actuarial)**

DATE: **EXAM SESSION:**

TIME: 2.00 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. State and explain any three types of research. **[6 marks]**

b. Distinguish between research methods and research methodology. **[4 marks]**

c. A good research objective has fundamental characteristics. State and explain any two **[4 marks]**

d. State and explain any three factors affecting sample designs. **[3 marks]**

e. A survey targets a finite population of 15,000 individuals. The population can be stratified into three distinct groups. The groups are made up of 6,000, 4000, and 5,000 individuals each. The groups are observed to have unique within variabilities The standard deviations for the three groups are 40, 19 and 14 respectively. The survey desires a sample size of 50. Obtain the strata sizes for this survey based on optimum allocation. **[6 marks]**

f. A company manufactures prepainted iron sheets of some standard length. They claim that on average the variation in length from sheet to sheet is 0.64 squares unit. One wishes to sample some iron sheets for a survey on sheet length. Determine the sample size required based on a 95% Confidence Interval. **[5 marks]**

g. Distinguish between coding and editing in data processing. **[2 marks]**

QUESTION TWO (20 MARKS)

Distinguish between the following statistical devices as used in empirical studies:

i. Measures of central tendency and Measures of relationships **[4 marks]**

ii. Chi Square tests and F- tests **[4 marks]**

iii. T tests and ANOVA **[4 marks]**

iv. Kruskal Wallis test and Friedman test **[4 marks]**

v. Kendall's Tau and Yule's coefficient of association **[4 marks]**

QUESTION THREE (20 MARKS)

a. A finite population consist of 3000 persons. A simple random sample is to be dranw from this population. Obtain the required sample size under the following schemes;

   i. The sample to be drawn is conservative and is restricted to a precision of 3% of the true value with a 90.5% probability . **[5 marks]**

   ii. The sample is to be determined using Cochran's method **[5 marks]**

b. Discuss the need for a research design and give the features that would define a good research design. **[10 marks]**

QUESTION FOUR (20 MARKS)

Discus in detail the following methods of data collection giving at least FIVE merits and Five demerits for each.

i. Questionnaires **[10 marks]**

ii. Telephone interviews **[10.marks]**

QUESTION FIVE (20 MARKS)

The text below is part of a Statement of a problem in a study:
Education is considered the foundation for socio-economic development in Kenya. The government promotes quality and equitable education for all citizens. In 2003, the government of Kenya introduced free primary education in order to increase access to basic education to its citizens in educational coverage between different counties as well as between boys and girls.

Based on the above excerpt

i)	Give a possible reseach topic	**[2 marks]**
ii)	Formulate an appropriate statement of purpose for the study	**[3 marks]**
iii)	Identify any three possible research questions in the study	**[6 marks]**
iv)	Identify any three possible reseach hypothesis	**[3 marks]**
v)	State the corresponding research objectives	**[6 marks]**