



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF MATHEMATICS AND ACTUARIAL SCIENCE

**UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF SCIENCE IN
ACTUARIAL SCIENCE**

3RD YEAR 2ND SEMESTER 2016/2017 ACADEMIC YEAR

MAIN REGULAR

COURSE CODE: SAS 314

COURSE TITLE: STATISTICAL METHODS

EXAM VENUE:

TIME: 2.00 HOURS

Instructions:

- 1. Answer questions one and any other two.**
- 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) Give a precise definition of the term Research [4]
- b) What is the difference between Null and Alternate hypothesis. [4]
- c) One of the methodological approaches to research is Epistemology. The three main epistemological perspectives are:(i) Positivism (ii) Phenomenology and (iii) Critical. Explain each of these perspectives. [6]
- d) Explain when the use of chi-square test is most appropriate in a research [4]
- e) .Discuss experimental and non-experimental research giving the main differences between them. [4]
- f) In the context of research explain each of the following: Population, sample, subject, parameter, statistic, concept, variable, hypothesis and theory. [8]

QUESTION TWO (20 Marks)

- a) What is ANOVA and under what specific circumstances is it applicable? [5]
- b) Explain in detail five types and sources of data. [15]

QUESTION THREE(20 Marks)

- a) Distinguish between TYPE I error and TYPE II error. Illustrate your response with a practical example [8]
- b) The 4 different purposes of research may be given as: i)Exploratory ii)Descriptive iii)Analytical and iv)Evaluation. Explain in detail each of them. [12]

QUESTION FOUR(20 Marks)

There are two broad two broad types of sampling methods namely:

- i) Probabilistic (or Scientific) sampling methods and
- ii) Non-Probabilistic (or non-scientific) sampling methods.

Discuss in detail any 4 sampling methods under i) and any 3 sampling methods under ii) above, giving the procedure involved in each case. [20]

QUESTION FIVE(20 Marks)

Explain what is meant by Research Design and hence discuss any 4 types of research design

Giving examples where necessary. [20]