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**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF MATHEMATICS AND ACTURIAL SCIENCE**

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

**ACTUARIAL SCIENCE**

**3RDYEAR 2ND SEMESTER 2016/2017ACADEMIC YEAR**

**MAIN REGULAR**

**COURSE CODE: SAS 314**

**COURSE TITLE: STATISTICAL METHODS**

**EXAM VENUE: LAB 4 2ND FL STREAM: (Bsc. Actuarial Science with IT)**

DATE: 26/04/17 EXAM SESSION: 11.30 – 1.30 PM

TIME: 2 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)**

1. Give a precise definition of the term Research [4]
2. What is the difference between Null and Alternate hypothesis. [4]
3. 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]
4. Explain when the use of chi-square test is most appropriate in a research [4]
5. .Discuss experimental and non-experimental research giving the main differences between them. [4]
6. 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)**

1. Distinguish between TYPE I error and TYPE II error. Illustrate your response with a practical example [8]
2. 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]