



# UNIVERSITY EXAMINATIONS

**SECOND SEMESTER 2023/2024 ACADEMIC YEAR**

**SECOND YEAR EXAMINATION FOR THE DEGREE OF  
BACHELOR OF SCIENCE IN GEOGRAPHY**

**GEOG 225: APPLIED STATISTICS IN GEOGRAPHY**

***STREAM: R***

***TIME: 2 HRS***

***DAY: WEDNESDAY [2.30 – 4.30 P.M]***

***DATE: 17/04/2024***

**THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES**

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**INSTRUCTIONS TO CANDIDATES**

- i) Answer **QUESTION ONE** and **ANY OTHER TWO** Questions.  
 ii) Maps, sketches, diagrams and examples should be used where they serve to illustrate the answers.

**QUESTION ONE (30 MARKS)**

- a) Explain the meaning of the following terms as used in statistics
- i. Confidence level. **(3 Marks)**
  - ii. Mutually exclusive events. **(3 Marks)**
  - iii. Null hypothesis. **(3 Marks)**
  - iv. Alternative hypothesis. **(3 Marks)**
- b) Calculate the sample size if 500 people with a confidence level of 95% confidence level and 5% margin of error are to be sampled. **(8 Marks)**
- c) Given that  $\chi$  is 1,2,3,4,5,6, using a probability distribution table find the standard deviation of the data. **(10 Marks)**

**QUESTION TWO (20 MARKS)**

A school claimed that the students who study are more intelligent than from average school. On calculating IQ score for 50 students, the average turned out to be 110. The mean of the population IQ is 100 and standard deviation is 15.

- a) State the null hypothesis.
- b) State the alternative hypothesis.
- c) State whether the claim is right or wrong by calculation. **(20 Marks)**

**QUESTION THREE (20 MARKS)**

An experiment with five-sample variable gave the results as following

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
10	12	9	14	10
4	10	4	9	6
6	13	4	10	8
4	7	5	11	4

Complete the table below from the

<i>Source of variation</i>	<i>Sum of squares</i>	<i>d.f</i>	<i>Mean square</i>	<i>f</i>	<i>f.95</i>
<i>total</i>					
<i>Between means</i>					
<i>Within samples</i>					

State deduction of the results from the table.

**(20 Marks)**

#### **QUESTION FOUR (20 MARKS)**

An experiment to determine the relationship between force on a wire and the resulting extension, the following data is obtained.

force	10	20	30	40	50	60	70
extension	0.22	0.40	0.61	0.85	1.20	1.45	1.70

Determine the linear coefficient of correlation for this data.

**(20 Marks)**

#### **QUESTION FIVE (20 MARKS)**

7. The following table relate to the tourist arrivals during 1990 to 1996 in Kenya

year	1990	1991	1992	1993	1994	1995	1996
Tourist arrivals in millions	18	20	23	25	24	28	30

Fit a straight line trend by the method of least square and estimate the number of tourists that would arrive in the year 2000.

**(20 Marks)**