



**UNIVERSITY EXAMINATIONS**  
**SECOND YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF**  
**BACHELOR OF ARTS IN GEOGRAPHY**  
**SECOND SEMESTER 2023/2024**  
**[JAN - APRIL, 2024]**

**GEOG 225: APPLIED STATISTICS IN GEOGRAPHY**

**STREAM: Y2 S2**

**TIME: 2 HOURS**

**DAY: FRIDAY, 12:00 - 2:00 P.M**

**DATE: 19/04/2024**

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**INSTRUCTIONS**

- 1. Do not write anything on this question paper.***
- 2. Answer question ONE in section A (Compulsory) and any other TWO questions from section B.***

**SECTION A. (30 MARKS)**

**QUESTION ONE**

- (a) Define the following (6 marks)
- Variable
  - Descriptive statistic
  - Inferential statistic
- (b) Explain five characteristics of statistical data (10 marks)
- c) Describe the properties of t-distribution (6 marks)
- d) Give the data
- | X  | Y  |
|----|----|
| 10 | 14 |
| 12 | 17 |
| 15 | 23 |
| 23 | 25 |
| 20 | 21 |

Calculate the regression of X on Y

(8 marks)

**SECTION B (40 MARKS, ANSWER ANY TWO [2] QUESTIONS)**

**QUESTION TWO**

a) Describe the following type of measurements

(9 marks)

- iv. Ordinal
- v. Interval
- vi. Ratio scale

(b) Explain four limitations of the science of statistics

(8 marks)

c) Calculate the standard deviation of the following data

(3 marks)

192, 288, 236, 229, 184, 260, 384, 291, 330, 242

**QUESTION THREE**

(a) Define the following variables

- i. Random variable
- ii. Probability function

(6 marks)

(b) Explain four properties of the normal distribution

[8 marks]

c) State five properties of regression analysis

(6 marks)

**QUESTION FOUR**

(a) The following table gives the weight in kg of 60 items

| <b>Weight</b> | <b>number of items</b> |
|---------------|------------------------|
| 29.5- 34.5    | 3                      |
| 34.5-39.5     | 5                      |
| 39.5-44.5     | 12                     |
| 44.5-49.5     | 18                     |
| 49.5-54.5     | 14                     |
| 54.5-59.5     | 6                      |
| 59.5-64.5     | 2                      |

Required:

i. Draw an histogram to represent the data and estimate the mode

(6 marks)

ii. Calculate the coefficient of variation

(4 marks)

(b) Explain the utility of time series analysis

[5 marks]

(c) State four factors determining the power of statistical test. (5 marks)

**QUESTION FIVE**

(a) Describe the concept of estimation theory (4 marks)

(b) Explain the main features of a good estimator (8 marks)

(c) Describe type I and type II errors on the nature of reality (8 marks)