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**KIBABII UNIVERSITY**

**UNIVERSITY EXAMINATION**

**ACADEMIC YEAR 2021/2022**

**THIRD YEAR FIRST SEMESTER MAIN EXAMINATIONS**

**BACHELOR OF EDUCATION ARTS**

**COURSE CODE: GEO 314**

**COURSE TITLE: QUANTITATIVE METHODS IN GEOGRAPHY**

**DATE: MAY 25, 2022**

**TIME: 9 – 11 AM**

**DURATION: 2 HOURS**

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**INSTRUCTIONS TO CANDIDATES**

ANSWER **ALL** QUESTIONS IN SECTION (A) AND ANY OTHER TWO QUESTIONS IN SECTION (B)

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Page 1 of 2

**SECTION A (compulsory questions)**

1. a. Explain any three reasons for sampling in a geographical research. (6 marks)
- b. Highlight the steps you would follow in conducting stratified random sampling in a geographical research. (6 marks)
- c. A teacher provides the following weightage of 20% for class attendance, 30% for project work, 40% for tests, and 10% for home assignments. A student scores 80/100 for class attendance, 4/5 in project work, 35/50 in tests, and 8/10 in home assignments. Find the final score of the student. (6 marks)
- d. Discuss any three levels/scales of measurements (12 marks)

**SECTION B (Optional Questions)**

2. a. Explain any two features of a normal distribution curve. (4 marks)
- b. Define skewness and describe two types of skewed observations (8 marks)
- c. The data below relates to observations recorded in a geographical experiment:  
1,2,1,4,4,4,4,4,1,10,11  
Calculate the Pearson's Coefficient of Skewness and explain your results. (8 marks)

3. a. Highlight any four assumptions to be made before data is subjected to regression analysis (4 marks)

- b. The following data shows the heights and weights of 10 geography students in a class.

Plant height(inches)	6.2	7.2	6.8	5.8	6.5	7.0	6.6	6.3	6.0	7.2
Leaf size (cm <sup>2</sup> )	5.0	6.5	6.3	5.0	5.4	6.0	6.1	5.5	5.4	6.5

- i) Calculate Pearson's correlation coefficient (r) (10 marks)
- ii) Plot a scatter diagram and indicate the direction of the relationship. (6 marks)
4. a. Highlight any four characteristics of a good hypothesis. (4 marks)
- b. Explain the two types of errors commonly committed in hypothesis testing and state two ways that can help a researcher avoid such errors (6 marks)
- c. The data below relates to performance of 10 students in English and Kiswahili languages

Student Code	1	2	3	4	5	6	7	8	9	10
English	75	75	71	72	74	72	85	64	74	71
Kiswahili	57	55	58	66	73	78	65	76	74	69

Formulate a suitable null and alternative hypothesis and use an appropriate statistical test to determine whether there is a significant difference in the performance between the two subjects at 95% confidence level and make a conclusion based on your results. (10 marks)

5. A research carried out on land uses in Bungoma County established that a variety of herbs existed in areas under different land uses as shown in the table below.

Species	Natural Forest	Urban Settlement	Exotic Plantation
<i>Urtica massaica</i>	60		
<i>Crepis carbonaria</i>	10		
<i>Oxalis anthelmintica</i>	12	4	
<i>Dichondra repens</i>	1	0	1
<i>Isoglossa laxa</i>	4	1	50
<i>Olea Africanah</i>	10	7	
<i>Erythrina abyssinica</i>		8	6
<i>Croton macrostachys</i>	25		
<i>Albizia gummifera</i>			10

- a. Calculate the Shannon diversity index for the data (12 marks)
- b. Draw a comparative bar graph to represent the variation in species diversity. (8 marks)

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