UNIVERSITY EXAMINATION

ACADEMIC YEAR 2021/2022

THIRD YEAR FIRST SEMESTER

SPECIAL/SUPPLEMENTARY EXAMINATIONS

BACHELOR OF EDUCATION ARTS

COURSE CODE: GEO 314/318

COURSE TITLE: QUANTITATIVE TECHNIQUES AND COMPUTER AIDED DATA ANALYSIS

DATE: NOVEMBER 16, 2022   TIME: 11:00AM – 1:00 PM

DURATION: 2HOURS

INSTRUCTIONS TO CANDIDATES
ANSWER ALL QUESTIONS IN SECTION (A) AND ANY OTHER TWO QUESTIONS IN SECTION (B)

SECTION A (compulsory questions)

1. a. Highlight any four importance of statistics in Geographic research (4 marks)

   b. Define the following terms as applied in research and statistics:

   i. Hypothesis (2 marks)

   ii. Population (2 marks)

   iii. Variable (2 marks)

   c. Students at Kibabii University sat for an examination at the end of the semester. Their results were grouped as shown- in the table below:

Class	Frequency
50-54	5
55-59	6
60-64	5
65-69	4
70-74	8
75-79	10
80-84	7

   Compute the following summary statistics for the data:

   i. Mean (3 Marks)

   ii. Mode (4 Marks)

   iii. Median (4 Marks)

   iv. Quartile deviation of the data (4 Marks)

   v. Standard deviation and variance (5 marks)

SECTION B (Optional Questions)

2. A geography student of Kibabii University desires to engage in research so as to determine the effects of Covid 19 on community livelihoods. Describe any four non probability sampling techniques that could be used in data collection (20 marks)

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

Species	Natural Forest	Urban Settlement	Exotic Plantation

Acacia lahai	2		
Cedrus atlantica	8	5	
Podocarpus latifolia	1	8	8
Olea europea	1	6	
Hagenia abbysinica	3		7
Rapanea melanophloeos	5	4	5
Crepis carbonaria		5	
Albizia gummifera			3

Compute the following indices for the data:

- a. Simpson diversity index.   (12 marks)
- b. Whittaker beta diversity index.   (8 marks)

4. a. Explain what is meant by kurtosis   (2 marks)

   b. Describe three types of kurtic peaks in a distribution   (9 marks)

   c. The data below relates to a natural science experiment:

      2, 2, 3, 3, 3, 3, 4, 4, 4, 5, 5, 6

     i. Plot the series in a frequency polygon   (4 marks)

     ii. Calculate the skewness index for the distribution   (5 marks)

5. a. Highlight any FIVE purposes of a hypotheses in geographical research.   (5 marks)

   b. The data below relates to students' height-weight relationship measurements

S/N	1	2	3	4	5	6	7	8	9	10
Height (x)	44	54	50	48	47	52	48	45	42	54
Weight (y)	32	47	45	32	36	42	41	35	36	47

     i. Construct a scatter diagram for the observation   (5 marks)

     ii. Calculate the Pearson's correlation coefficient (r) for the observations   (8 mark)

     iii. Estimate the weight when the height is 58 inches   (2 marks)