CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE AWARD OF BACHELOR OF SCIENCE IN ECONOMICS AND SOCIOLOGY, BACHELOR OF ECONOMICS AND STATISTICS, BACHELOR OF AGRICULTURE ECONOMICS, BACHELOR OF ARTS.

ECON 233:   ECONOMIC STATISTICS I

STREAMS: ECOSTAT, ECONMATH, ECONSOCIO, ECONHIST and AGRICECON

TIME: 2 HOURS

DAY/DATE: TUESDAY 5/12/2017   **11.30 A.M - 1.30 P.M.**

INSTRUCTIONS:
- **Answer Question ONE and any other TWO Questions.**
- **All your working should be shown**

QUESTION ONE [30 MARKS]
(a) Define giving examples the term discrete variable.   [5 Marks]

(b) State the features of normal distribution curve.   [4 Marks]

(c) Explain three limitations of Statistics.   [3 Marks]

(d) Consider the distribution of the yields (per plot) of two paddy varieties. For the first variety, the mean and standard deviation are 60 kg and 10 kg respectively.   For the second variety, 50kg and 9kg respectively. Comment on their variability.   [4 Marks]

(e) The marks of 500 candidates in an examination are normally distributed with a mean of 45 marks and a variance of 20 marks.
   (i) Given that the pass marks is 41, calculate percentage of candidates who passed the examination.   [4 Marks]

   (ii) If 5% of the candidates obtained a distinction by scoring x marks or more, estimate the value of x.   [4 Marks]

(f) Distinguish between the following terms giving an example in each case;

(i) Element and variable [3 Marks]
(ii) Descriptive Statistics and Inferential Statistics [3 Marks]

QUESTION TWO [20 MARKS]

(a) Given the data below, the Laspeyres price index is 146.58 and Pasches price index is 145.36.

Commodity	2007		2008	
	Price (Kshs.)	Quality (Kg)	Price (Kshs.)	Quantity (kg)
A	x	15	22	12
B	20	5	27	Y
C	4	10	7	5

(i) Find the value of x and y [6 Marks]
(ii) Find the Fishers quantity index [6 Marks]

(b) The sum of 50 observations is 500. Its sum of squares is 6000 and median 12. Find;
(i) The mean [2 Marks]
(ii) The standard deviation [3 Marks]
(iii) Coefficient of variation [3 Marks]

QUESTION THREE

(a) The following are numbers of deaths for various age categories during one year in a certain community

Age-group	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45
Deaths	2	4	6	15	24	31	18	13	7

Construct a cumulative frequency curve and use it to:
(i) Estimate the median age of death. [1 Mark]

(ii) Estimate the Quartile deviation [2 Marks]

(iii) If most people died at age 37 years, find the percentage of the people lived after 37 years. [2 Marks]

(iv) Calculate the standard deviation [6 Marks]

(b) Distinguish between the following terms:
(i) Observation and Interview [3 Marks]
(ii) Lorenz curve and Cumulative frequency curve [3 Marks]

QUESTION FOUR [20 MARKS]

(a) The life of two types of bulbs in a sample survey is as given below:

Life (In hours)	Type X	Type Y
500-1000	18	15
1000-1500	22	24
1500-2000	26	30
2000-2500	25	18
2500-3000	9	13

(i) Calculate the mean life for each bulb.   [6 Marks]

(ii) Find the variance of the two types of bulbs.   [6 Marks]

(iii)What is the combined standard deviation of the two bulbs?   [4 Marks]

(b) State and explain four factors considered in construction of index numbers.   [4 Marks]

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