MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF ECONOMICS

SECOND YEAR FIRST/SECOND SEMESTER EXAMINATION FOR

BACHELOR OF ECONOMICS

BACHELOR OF ECONOMICS AND FINANCE

EES 201: STATISTICS FOR ECONOMISTS I

DATE: 14/12/2021 **TIME: 2.00-4.00 PM**

INSTRUCTIONS:

Answer Question ONE and any other TWO questions

QUESTION ONE (COMPULSORY) (30 MARKS)

a) Differentiate between discrete variable and a continuous variable giving an example of each (4 marks)

b) Define the following terms as used in statistics (4 marks)
   (i) parameter
   (ii) Population
   (iii) Kurtosis
   (iv) Data

c) Calculate the standard deviation of the set of data given below (4 marks)
   6, 2, 3, 1, 7, 5

d) The table below shows the marks obtained by students in a Mathematics test marked out of 50.

Class (Marks	No. of Students
35-39	1
30-34	6
25-29	14
20-24	23
15-19	31
10-14	13
5-9	2

(i) Calculate the mean, median and mode marks (9 marks)

(ii) Calculate the variance and standard deviation (5 marks)

e) Distinguish between Laspeyres and Paasche methods of computing weighted price index (4 marks)

QUESTION TWO (20 MARKS)

a) Given the scores in the table below.

47	51	52	41	44	37	36	40	45
63	62	50	42	40	46	42	43	56
59	37	42	56	50	52	56	51	48
56	30	54	44	46	68	37	60	53
44	49	32	46	53	66	66	40	49
48	45	57	63	48	58	43	51	64

i) Prepare a cumulative frequency distribution using a uniform class size and the lowest class 30-34 (5 marks)

ii) Draw a cumulative frequency graph and use it to estimate the median score (5 marks)

iii) Calculate the quartile deviation (6 marks)

b) Distinguish between stratified and cluster sampling (4 marks)

QUESTION THREE (20 MARKS)

a) Below is a frequency distribution of raw scores in a Statistics for Economists I examination.

Score	No. of candidates
30-39	2
40-49	3
50-59	10
60-69	20
70-79	42
80-89	33
90-99	10

Draw a histogram and corresponding frequency polygon (6 marks)

b) Using appropriate examples in each case, explain four levels of measurement in statistics (8 marks)

c) Find the mode of the sets of data below (6 marks)

(i) 7, 10, 3,4

(ii) 6, 11, 7, 5, 2, 11, 9, 13, 7,6, 8

(iii) 22, 30, 19, 18, 32, 29

QUESTION FOUR (20 MARKS)

a) Explain non-probability sampling methods (10 marks)

b) Information regarding prices and quantities of six commodities is provided in the Table below.

Table: Price and Quantity of Food Items in 2009 and 2019

item	2009 price	2009 quantity	2019 price	2019 quantity
Bread	0.87	50	1.28	55
Eggs	1.05	26	2.17	20
Milk	2.94	102	3.87	130
Apples	0.86	30	1.16	40
Orannge	1.75	40	2.54	41
Coffee	3.43	12	3.68	12

Determine a weighted price index using the Laspeyres method. Interpret the result (10 marks)

QUESTION FIVE (20 MARKS)

a) The following information is given about the two overlapping Index Series with different base periods:

year	Old Series Price Index (2007=100)	New Series Price (2011=100)
2007	100	-
2008	120	-
2009	146	-
2010	172	-
2011	200	100
2012	-	110
2013	-	116
2014	-	125
2015	-	140

i. Splice the new series to make it continuous with the old series (3 marks)

ii. Splice the old series to make it continuous with the new series (3 marks)

b) Calculate the mode of the following distribution (6 marks)

Gross profit (% of sales)	0-6	7-13	14-20	21-27	28-34	35-41	42-48
Number of companies	19	25	36	72	51	443	28

c) Explain the following terms as used in statistics (8 marks)

(i) Sampling Frame

(ii) Sampling error

(iii) Population

(iv) Census