



MACHAKOS UNIVERSITY

University Examinations for 2017/2018 Academic Year

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF ECONOMICS

SECOND YEAR FIRST SEMESTER EXAMINATIONS FOR

BACHELOR OF ECONOMICS AND STATISTICS

EES 201: STATISTICS FOR ECONOMISTS I

DATE: 13/12/2017

TIME: 2:00 – 4:00 PM

INSTRUCTIONS

Answer Question ONE and any other TWO questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- (a) Differentiate between qualitative variable and a quantitative variable (4 marks)
- (b) Classify the following into nominal, ordinal, interval and ratio scales (2 marks)
- (i) Temperature
 - (ii) Age
 - (iii) Ranking of soccer players
 - (iv) Eye colour
- (c) Using the data in the table below;

57	61	57	57	58	57	61	56	51
51	49	64	50	48	65	52	42	56
54	49	50	47	55	55	54	55	
56	55	54	51	60	62	43	68	
61	52	69	64	46	54	54	46	

- (i) Prepare frequency distribution with 40-44 as the lowest class. (4 marks)
- (ii) Draw a histogram for the distribution (3 marks)
- (iii) Draw an ogive for the distribution (3 marks)
- (v) Compare the Arithmetic mean, median and mode and comment. (4 marks)
- (vi) Calculate the coefficient of skewness of the distribution and comment. (3 marks)
- (d) Given the following price-quality data of Muthokoi. With price quoted in Kshs and production in quantities

Year	1980	1981	1982	1983	1984	1985
Price (p_i)	15	17	16	18	22	20
Quantity (q_i)	500	550	480	610	650	600

- (i) Construct the price index of each year taking price of 1980 as the base. (2 marks)
- (ii) Construct the "quantity index for each year taking quantity of 1980 as the base. (2 marks)
- (e) Consider the two investment proposals:

	Oil venture	Real Estate Projects
Expected cash flow (x)	\$10,000	\$ 1,000,000
Standard Deviation (a)	\$7,200	\$14,000

Which investment is more riskier? Why? (3 marks)

QUESTION TWO (20 MARKS)

Write brief notes on the following topics as used in economic statistics. Illustrate if necessary.

- (i) Discrete and continuous variables. (2 marks)
- (ii) Kurtosis (3 marks)
- (iii) Sampling methods (6 marks)
- (iv) Data collection methods (6 marks)
- (v) Uses/Application of Index numbers (3 marks)

QUESTION THREE (20 MARKS)

The following data, which appeared in the 1993 special issues of Business week, give the price-earnings ratios for 25 companies. Those price earnings ratio are based on 1992 earnings and March 5, 1993 stock prices.

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

- (i) Determine the quartile deviation (4 marks)
- (ii) Determine the standard deviation (4 marks)
- (iii) Determine the coefficient of skewness (4 marks)
- (iv) Determine Kurtosis and interpret (4 marks)
- (v) Determine the percentiles 30, 40, 60 and 70 (4 marks)

QUESTION FOUR (20 MARKS)

- (i) Discuss Kurtosis and explain how it is relevant to economic statistics. (4 marks)
- (ii) Fluctuations in the daily sales of the Products, X and Y are given below:

Daily sales for Product X:

620, 624, 622, 625, 622, 618, 619,, 616, 623, 625, 626, 625

Daily sales for Product Y:

2152, 2134, 2132, 2145, 2132, 2142, 2146, 2130, 2146, 2142, 2142, 2150,
2135. -2152

Which of the two shows greater fluctuation in sales and why? (5 marks)

- (iii) Calculate the second, third and the fourth moments about the mean for the following distribution of service time at registration counter of a local Post Office. (7 marks)

Service Time, (minutes)	2.0	2.5	3.0	3.5	4.0	4.5
No. of frequencies	5	30	40	15	5	5

- (iv) Discuss the marginal and conditional distribution as a tool for data organization. Illustrate your answer. (4 marks)

QUESTION FIVE (20 MARKS)

- (i) Briefly explain each of the following: Illustrate where necessary
- (a) Base-shifting (2 marks)
 - (b) Splicing (2 marks)
- (ii) The following information is given about some commodity

Commodities	Base Year (1989)4 Current year (198-5)			
	Price	Quantity -	Price ; Quantity	
A	2	8	4	6
B	5	10	6	5
C	4	14	5	10
D	2	19	2	13

Determine the following for 1985 taking 1980 as the base year. Interpret your answer.

- (a) Laspeyre's Price and Quantity Index for 1985 taking 1980 as the base, year. (3 marks)
- (b) Paasche's Price and Quantity Index for 1985 taking 1980 as the base year. (3 marks)

- (c) Fischer's Price and Quantity Index for 1985 taking 1980 on the base year.

(3 marks)

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

Year	Old Series Price Index (1976=100)	New Series Price Index (1980=100)
1976	100	
1977	120	-
1978	146	-
1979	172	-
1980	200	100
1981	-	110
1982	1	116
1983	-	125
1984	-	140

- (i) Splice the new series to make it continuous with the old series.
- (ii) Splice the old series to make it continuous with the new series
- (e) Reconstruct the following indices using 1985 as the basic year

(2 marks)

(2 marks)

(3 marks)

Year: 1982 1983 1984 1985 1986 1987

Index: 100 120 190 200 212 250