



MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF ECONOMICS

SECOND YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF ECONOMICS AND FINANCE

BACHELOR OF ECONOMICS

EES 201: STATISTICS FOR ECONOMISTS I

DATE: 10/8/2021

TIME: 11.00-1.00 PM

INSTRUCTIONS:

Answer Question ONE and any other TWO questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) An investor is fond of investing in equity shares. During a period of falling prices in the stock exchange, a stock sold at \$ 120 per share on one day, \$105 on the next day and \$90 on the third day. The investor has purchased 50 shares on the first day, 80 shares on the second day and 100 shares on the third day. What average price per share did the investor pay?
(3 marks)
- b) A number of particular articles have been classified according to their weights. After drying for two weeks, the same articles have again been weighed and similarly classified. It's known that the median weight in the first weighing was 20.83 gm while in the second weighing it was 17.35 gm. Some frequencies **a** and **b** in the first weighing and x and y in the second weighing are missing. It is known that $a = \frac{1}{3}x$ and $b = \frac{1}{2}y$. Find out the values of missing frequencies.

0-5	a	x
6-11	b	y
12-17	11	40
18-23	52	50
24-29	75	30
30-35	22	28

(4 marks)

c) The following table gives the frequency distribution of ages of all 50 employees of a company.

Age	Number of employees
18-30	12
31-43	17
44-56	14
57-69	7

- Prepare the relative frequency and percentage distribution columns. (4 marks)
- Prepare the Histogram, frequency polygon and cumulative frequency distribution graphs (4 marks)
- Calculate the Arithmetic, geometric and the Harmonic mean for the distribution (3 marks)
- Calculate the mode and the median for the distribution. (2 marks)
- Compare the Arithmetic mean, median and mode and comment. (2 marks)
- Calculate the coefficient of skewness of the distribution and comment. (2 marks)

d) Below is the price-quality data of Muthokoi Enterprises Limited with price quoted in Kshs and production in quantities.

Year	1980	1981	19-82	1983	1984	1985
Price (p_i)	15	17	16	18	22	20
Quantity (q_i)	500	550	480	610	650	600

- Construct the price index of each year taking price of 1980 as the base. (2 marks)
- 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 (σ)	\$7,200	\$14,000

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

f) Classify the following into nominal, ordinal, interval and ratio (3 marks)

- Temperature
- Age
- Ranking of soccer players

QUESTION TWO (20 MARKS)

Write brief notes on the following topics as used in economic statistics. Illustrate where applicable.

- a) Quantitative and qualitative variables (4 marks)
- b) Sampling methods (6 marks)
- c) Data collection methods (6 marks)
- d) Uses/Application of Index numbers (4 marks)

QUESTION THREE (20 MARKS)

- a) 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.

31	13	12	22	27	33	17	26	
16	22	18	13	16	23	30	18	
22	15	26	12	20	21	23	27	30

- i. Construct a frequency distribution table with 5 as the class width and taking 10 as the lower limit of the first class, i.e. 10.... (4 marks)
 - ii. Determine the quartile deviation (4 marks)
 - iii. Determine the standard deviation (4 marks)
 - iv. Determine the coefficient of skewness (3 marks)
- b) Define the following terms (5 marks)
 - i. Population
 - ii. Census
 - iii. Sampling Frame
 - iv. Sampling unit

QUESTION FOUR (20 MARKS)

a) Discuss Kurtosis and explain how it is relevant to economic statistics. (4 marks)

b) 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)

c) 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

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

QUESTION FIVE (20 MARKS)

a) Briefly explain each of the following: Illustrate where necessary

i. Base-shifting (2 marks)

ii. Splicing (2 marks)

b) 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.

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

ii. Paasche's Price and Quantity Index for 1985 taking 1980 as the base year (3 marks)

iii. Fischer's Price and Quantity Index for 1985 taking 1980 on the base year (3 marks)

- c) In class of 25 student of economics and statistics wrote a test and results of this test are summarized as follows:

12 12 10 11 9 13 12 15
 11 13 7 12 11 9 10 16
 13 17 6 10 15 5 6 8
 9

Calculate the following:

- i. Mean for this set of data. (3 marks)
 - ii. Median for this set of data. (2 marks)
 - iii. Mode values for this set of data. (2 marks)
- d) Use the information in the Table below to answer the following questions

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

- i. Splice the old series to make it continuous with the new series (2 marks)
- ii. Reconstruct the following indices using 1985 as the basic year (3 marks)

Year: 1982 1983 1984 1985 1986 1987
 Index: 100 120 190 200 212 250