



**MASENO UNIVERSITY**  
**UNIVERSITY EXAMINATIONS 2016/2017**

**SECOND YEAR SECOND SEMESTER EXAMINATIONS FOR THE  
DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION WITH  
INFORMATION TECHNOLOGY**

**CITY CAMPUS**

**ABA 206: BUSINESS STATISTICS**

Date: 16<sup>th</sup> June, 2017

Time: 5.30 - 8.30 pm

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**INSTRUCTIONS:**

- Answer question ONE and any other THREE questions.
- Show all your workings clearly.
- Question ONE carries 25 marks while the rest carry 15 marks each.



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**QUESTION ONE (25 MARKS)**

- a) Define the following terms as used in statistics
- i. Statistics.
  - ii. Parameter.
  - iii. Sample.
  - iv. Time series.
  - v. Index number. [5 marks]
- b) (i) Distinguish between skewness and kurtosis. [2 marks]  
(ii) How are moments useful in studying skewness and kurtosis? [2 marks]
- c) A freshman class consists of 40 students, 30 of which are women. The class needs to select a committee of 7 to represent them in the student senate. How many committees are possible if
- i. the committee must have exactly 5 women? [1 mark]
  - ii. the committee must have at least 5 women? [2 marks]
- d) The owner of XYZ Premier is interested in how much people spend at the restaurant. He examines 10 randomly selected receipts for parties of four and writes down the following data:  
44, 50, 38, 96, 42, 47, 40, 39, 46, 50
- Required:**
- i. Mean using the shortcut method. [2 marks]
  - ii. Moment coefficient of skewness. [3 marks]
  - iii. Quartile deviation. [3 marks]
- e) The table below shows the prices, P and the quantities grown, Q, of the three foodstuffs; maize, carrots and pyrethrum, grown in the Rift Valley in the years 2002 and 2012.

Produce	2002		2012	
	Price	Quantity	Price	Quantity
Maize	65.4	3615	168.7	2421
Carrots	63.8	807.6	166	263.2
Pyrethrum	53.3	41.2	183.4	10.91

Calculate simple quantity relatives for the three foodstuffs in 2012, taking 2002 as the base year. [3 marks]

### QUESTION TWO (15 MARKS)

- a) (i) What is meant by primary data? [2 marks]  
(ii) Discuss FOUR ways of collecting primary data, stating the advantages and disadvantages of each method. [8 marks]
- b) The mean weight of 150 students in a class is 60 kilograms. The mean weight of boys is 70 kilograms with a standard deviation of 10 kilograms. For the girls, the mean weight is 55 kilograms with a standard deviation of 15 kilograms. Find the number of boys and girls in the class and the combined standard deviation. [5 marks]

### QUESTION THREE (15 MARKS)

- a) Given the following data which relates to the marks scored by students in an Accounting quiz:

3, 14, 24, 33, 42, 6, 17, 25, 37, 48, 9, 18, 27

38, 51, 10, 21, 31, 40, 56, 12, 61, 63, 65, 74

Required;

- i. Construct a frequency distribution table. [3 marks]

- ii. Find the arithmetic mean. [2 marks]
  - iii. Calculate the Mode. [2 marks]
  - iv. Determine Bowley's coefficient of skewness. [4 marks]
  - v. Find the coefficient of quartile deviation. [2 marks]
- b) Two computers A and B are to be marketed. A salesman who is assigned the job of finding customers for them has 60% and 40% chances respectively of succeeding in case of computer A and B. The computers can be sold independently. Given that he was able to sell at least one computer, what is the probability that computer A has been sold? [3 marks]

**QUESTION FOUR (15 MARKS)**

- a) The following shows the cost in Kenya shillings and the total output in kilograms for sugar produced by a farmer.

Cost	34	43	47	56	59	71	75	80	85	90
Output	13	17	22	28	31	34	33	37	36	39

Required;

- i. Fit a regression line of the cost on the output. [2 marks]
  - ii. Hence estimate the output when the cost is 40. [3 marks]
  - iii. Calculate the coefficient of determination. [3 marks]
- b) DOC Company produces and sells four types of electric appliances. The prices and quantities in 2009 and 2010 are shown below:

Item	2009		2010	
	Price	Quantity	Price	Quantity
Radio	100	20	120	15
Clock	200	40	250	25
Toaster	130	30	130	50
Hair dryer	225	10	250	10

Required;

- i. Calculate the Laspeyres price index and [4 marks]
- ii. Paasche quantity index to measure the overall changes between 2009 and 2010. [3 marks]

**QUESTION FIVE (15 MARKS)**

- a) Briefly explain FIVE reasons of studying time series analysis.  
[5 marks]
- b) Eight tomato plants of the same variety were selected at random and treated weekly with a solution in which  $x$  grams of fertilizer was dissolved in a fixed quantity of water. The yield,  $y$  kilograms, of tomatoes was recorded

X	1	1.5	2	2.5	3	3.5	4	4.5
Y	3.9	4.4	5.8	6.6	7	7.1	7.3	7.7

**Required;**

- i. Plot a scatter diagram of yield versus the amount of fertilizer used. [3 marks]
- ii. Calculate the equation of regression of  $y$  on  $x$ . [5 marks]
- iii. Estimate the yield of a plot treated weekly with 3.2 grams of fertilizer. [2 marks]