

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE OF
BACHELOR OF COMMERCE**

BCOM 271: BUSINESS STATISTICS I

STREAMS: BCOM Y2S2

TIME: 2 HOURS

DAY/DATE: TUESDAY 13/8/2013

2.30 P.M. – 4.30 P.M.

INSTRUCTIONS:

Answer Question ONE and any other two questions.

All working must be clearly shown.

Do not write on the questions paper.

QUESTION ONE (30 MARKS)

(a) Briefly distinguish between the following statistical terms.

- (i) Sampling and census method
- (ii) A statistic and parameter
- (iii) Primary and secondary data

[6 marks]

(b) The times taken by a group of people to seal a business deal are as shown below.

Time (s):	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Frequency:	1	3	7	10	15	12	6	2

Calculate:

- (i) The mean of these times
- (ii) The standard deviation
- (iii) The mode
- (iv) The 5th decile, i.e. D_5

[3 marks]

[3 marks]

[2 marks]

[2 marks]

(c) A random variable is normally distributed with $\mu = 50$ and $\delta = 10$ i.e $X \sim \mu(50,100)$
 Compute $P(45 \leq x \leq 62)$. [4 marks]

(d) The following table shows the amount Ksh (“000”) of 40 cheques

Amount (Ksh)	118-126	127-35	136-144	145-153	154-162	163-171	172-180
Frequency	3	5	9	12	5	4	2

Using the above information, draw a histogram and frequency polygon on the same axes. [6 marks]

(e) If a bank receives an average of 6 bad cheques per day, what are the probabilities that they will be

- (i) 4 bad cheques in any given day [2 marks]
- (ii) 10 bad cheques in any 2 consecutive days [2 marks]

QUESTION TWO (20 MARKS)

(a) Outline the business application of linear regression analysis. [4 marks]

(b) Twelve people of different ages (years) were given a memory test with the following results:

Age	70	68	62	53	50	46	35	28	25	22	20	18
Test score	48	50	60	55	62	74	69	78	82	80	93	90

- (i) Fit a simple regression line of test score against age in years. [7 marks]
- (ii) If a person aged 60 years, what is the expected test score? [2 marks]
- (iii) Calculate the Spearman’s rank correlation. [5 marks]
- (iv) Make a brief comment on the results. [2 marks]

QUESTION THREE (20 MARKS)

(a) Explain the following methods of sampling:

- (i) Stratified random sampling
- (ii) Simple random sampling
- (iii) Systematic sampling [9 marks]

(b) Outline the main aspects of a good Questionnaire. [9 marks]

(c) Outline properties of a good measure of dispersion.

[2 marks]

QUESTION FOUR (20 MARKS)

(a) The following information relates to the expenditure by an average income family during the year 2004 & 2005.

Item	2004 Price (Sh)	2004 Quantity	2005 Price (Sh)	2005 Quantity
Milk (litres)	25	1000	27	1200
Maize flour (kg)	48	240	59	260
Rice (kg)	65	180	70	200
Sugar (kg)	52	60	65	50
Wheat flour (kg)	60	80	75	60

From the above information. Determine

- (i) The Laspeyre's price index [3 marks]
- (ii) The Paasche's price index [3 marks]
- (iii) The Fisher's price index [2 marks]

(b) Grand National hotel has been operating in Kenya for the past 15 years. The quarterly profits of the hotel during the last four years were as follows:

Year	Profits Sh "million"			
	Quarter			
	1	2	3	4
2005	33	36	35	38
2006	42	40	42	47
2007	54	53	54	62
2008	70	67	70	77

Required:

- (i) Centred four-quarter moving Average [6 marks]
- (ii) Average season index for each quarter using the multiplicative model. [6 marks]