CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF COMMERCE, AGRIBUSINESS MANAGEMENT, PROCUREMENT & LOGISTICS MANAGEMENT, COOPERTIVE MANAGEMENT & ENTREPRENEURSHIP MANAGEMENT

BCOM 262: BUSINESS STATISTICS

STREAMS: BCOM, AGBM, BPLM, BCOP & BEEM   **TIME: 2 HOURS**

DAY/DATE: FRIDAY 07/12/2018   **8.30 A.M. – 10.30 A.M.**

INSTRUCTIONS:
- **Answer question ONE and any other TWO questions**
- **Do not write anything on the question paper**
- **Clearly show all your workings**

QUESTION ONE

(a)   Explain four practical uses of statistics in business   [4 marks]

(b)   Explain FIVE factors that a researcher must put into consideration when designing a questionnaire as a tool for data collection   [5 marks]

(c)   After an interview, the candidates interviewed performed as explained in the table below:

Marks	Number of candidates
11-20	3
21-30	5
31-40	8
41-50	11
51-60	40
91-70	7
71-80	4
81-90	2

Required: prepare a histogram and a frequency polygon to show the performance of

persons interviewed   [6 marks]

(d)   The following data gives the pattern of overtime worked per week by 100 employees of a

company

Overtime hours	10-15	15-20	20-25	30-35	35-40
No. of employees	11	20	20	8	6

Required: calculate

(i)   Median   [2 marks]

(ii) Q_1 [2 marks]

(iii) D_7 [2 marks]

(e)   Explain two main sources of statistical information. Give examples   [4 marks]

(f)   In a survey carried out in Ndagani market it was found that the following families bought

dairy products in the following quantities in a particular month

9	9	26	22	9	22	19	26
17	6	24	16	18	07	25	8
10	10	24	20	21	09	23	12
22	14	23	15	39	20	13	23
11	13	36	37	34	18	28	18
31	22	5	11	26	33	14	20
17	7	21	32	21	30	28	29
12	15	27	17	21	16	24	15

Required: Prepare a grouped frequency distribution to show the above data.   [5 marks]

QUESTION TWO

(a)   Explain FOUR properties of normal distribution   [4 marks]

(b)   Using the following data concerning three commodities compute:

(i)   Laspeyers Index   [2 marks]

(ii)   Paasche's Index   [2 marks]

(iii)   Fisher's Price Index   [2 marks]

	2017		2018	
Commodity	Price	Quantity	Price	Quantity

	(ksh)	(kg)	(ksh)	(kg)
A	15	15	22	12
B	20	5	27	4
C	4	10	7	5

(c)   The following figures give the rainfall in indices for the year and the production in '000' of tonnes per paddy A types of rice and Paddy B types of rice

Rainfall							
Type A rice	15	18	20	32	40	39	32
Type B rice	15	17	20	18	20	21	15

Required: Calculate Karl's Pearson coefficient of correction between rainfall and total production   [10 marks]

QUESTION THREE

(a)   Explain FIVE assumptions of regression analysis   [5 marks]

(b)   1000 tube lights with a mean life of 120 days are installed in a new factory. Their length of life is normally distributed with standard deviation of 20 days

   (i)   How many tubes lights will expire in less than 90 days   [3 marks]

   (ii)   If it is decided to replace all the tube lights together, what interval should be allowed between replacements if not more than 10% should expire before replacement

           [3 marks]

(c)   The following data relate to production (in million tonnes) of stores of a certain firm

Year	2012	2013	2014	2015	2016	2017	2018
Production in (m. tonnes)	40	45	46	42	47	49	46

Required:

   (i)   Fit a straight line trend by the method of least square   [7 marks]

   (ii)   Predict the production for 2019 showing the same rate of change continues

                                                                            [2 marks]

QUESTION FOUR

(a)   Explain two types of variations in economic cycles   [4 marks]

(b)   In a certain firm, the human resource department introduces a test for job applicants to predict their production rating. A sample of 10 applicants is selected. They are given test and later assigned a production rating. Results are shown in the table below:

Worker	A	B	C	D	E	F	G	H	I	H
Test score	53	36	88	84	86	64	45	48	39	69
Production rating	45	43	89	79	84	66	49	48	43	76

Required: Fit a linear regression equation using method of least squares   [10 marks]

(c)   Explain importance of consumer index numbers in an economy   [6 marks]