The Co-operative University of Kenya

END OF SEMESTER EXAMINATION DECEMBER -2018

EXAMINATION FOR THE DEGREE OF BACHELOR OF CO-OPERATIVE BUSINESS / BACHELOR OF COMMERCE
(YR I SEM II)

UNIT CODE: HCOB 2114

UNIT TITLE: BUSINESS STATISTICS I

DATE: 17TH DECEMBER, 2018 **TIME: 9:00 AM – 11:00 AM**

INSTRUCTIONS:

- Answer question **ONE (compulsory)** and any other **TWO** questions

QUESTION ONE

(a) With relevant example (s), differentiate between the following terminologies;

(i) Qualitative and quantitative data (2 Marks)
(ii) Variable and outlier (2 Marks)
(iii) Type I and Type II error (2 Marks)
(iv) Regression model and correlation coefficient (2 Marks)

(b) The following information was provided by sales manager of a certain business unit for a new product. Calculate the standard deviation for random variable sales. (10 Marks)

Monthly sales	50	100	150	200	250	300
Probability	0.10	0.30	0.30	0.15	0.10	0.05

(c) State, with specific examples, levels of data measurements. (6 Marks)
(d) Highlight SIX characteristics of t-test distribution. (6 Marks)

QUESTION TWO

(a) The Public Transport Department study results on driving speed offences along Nairobi Namanga Highway was as given as follows;

Age	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54
No.	9	8	13	17	19	6	9	12	7

From the provided information, calculate;

(i) Arithmetic Mean (4 Marks)
(ii) Median (4 Marks)
(iii) Standard deviation (4 Marks)
(iv) Karl Pearson's coefficient of Skeness and comment on it. (3 Marks)

QUESTION THREE

Data from LED Systems Co. provided the following data from sales (in $ 000s) of computer software following a ten-week of commercial period. The manager wants to investigate whether relationship exists between the number of commercial (x) shown and sales (y)

Week	Commercial	Sales
1	2	50
2	5	57
3	1	41
4	3	54
5	4	55
6	1	38
7	5	63
8	3	48
9	4	59
10	2	46

(a) Plot a scatter diagram and fit a trend line of the information provided.
(b) Fit a regression equation of the trend line
(c) Predict sales for the company with 13 number of commercials. (20 Marks)

QUESTION FOUR

(a) The following information was made available by a hypothetical consumer.

	Year 2010		Year 2012	
Item	Price	Quantity	Price	Quantity
Beef	15	500	20	600
Mutton	18	590	23	640
Chicken	22	450	24	500

From the following data, taking 2010 as a base year, compute the Fishers' Ideal Index. (6 Marks)

(b) Monthly sales of General Motors Company was recorded in the last 12 months as shown;

Month	1	2	3	4	5	6	7	8	9	10	11	12
Sales	17	21	19	23	18	16	20	18	22	20	15	22

(c) Plot a line graph of actual sales against time (months) (4 Marks)
(d) Calculate a 3 – month period moving average (MA) and plot the results on the same Cartesian plane as in part (a) above, clearly labeling the two curves. (10 Marks)

QUESTION FIVE

KTN and NTV provided a television channel targets to entertain individuals waiting in Uchumi supermarket check-outs points. The channel showed news, shot features, and advertisements. The length of the program was base on the assumption that the population mean time a shopper stands in a supermarket check-out point is 7 minutes. A samples of

actual waiting times will be used to test this assumption and determine whether actual mean waiting time differs from this standard.

(a) Formulate hypothesis for this application. (3 Marks)
(b) A sample of 120 shoppers showed a sample mean waiting time of 8.56 minutes. Assume a population standard deviation of 3.2 minute. At a = 0.05, what is your conclusion? (7 marks)
(c) Compute a 95% confidence interval for the population mean. (5 Marks)
(d) Does the confidence interval in part (b0 support your conclusion? Why. (5 Marks)