MURANGA UNIVERSITY COLLEGE

(A constituent College of Jomo Kenyatta University of Agriculture & Technology)

MAIN/TOWN CAMPUS

SPECIAL/ SUPPLIMENTARY UNIVERSITY EXAMINATIONS

2014/2015 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER EXAMINATIONS

FOR THE DEGREE

OF

BACHELOR OF COMMERCE

COURSE CODE: HBC2110

COURSE TITLE: INTRODUCTION TO BUSINESS STATISTICS

DATE: 6TH AUGUST 2015 **TIME: 9.00-11.00AM**

INSTRUCTIONS TO CANDIDATES

Question ONE (1) is compulsory
Answer any TWO (2) questions

Question One 30mks

(a) Mention five characteristics of a good average. (5mks).

(b) The mean of marks in statistics of 100 students of a class was 72. The mean of marks of boys was 75 while their number was 70. Find out the mean marks of girls in the class. (3mks).

(c) The table below shows the distribution of the number of orders received by a supplier on a weekly basis.

Number of orders	Frequency
23 – 29	4
30 – 36	9
37 – 43	6
44 – 50	8
51 – 57	3

(i) Calculate the model weekly number of orders. (2mks).

(ii) The standard deviation. (3mks).

(iii) The co-efficient of skewness. (2mks).

(d) The probability that a new marketing approach will be successful is 0.6. The probability that the expenditure for developing the approach can be kept within the original budget is 0.50. The probability that both of these objectives will be achieved is 0.30. What is the probability that at least one of these objectives will be achieved? (2mks).

For the two events described above. Determine whether the events are independent or dependent. (2mks).

(e) Intelligence test given to two groups of boys and girls gave the following.

	Mean score	Standard Deviation	Number
Girls	75	10	50
Boys	70	12	100

Is the difference in the mean scores of boys and girls statistically significant? (5mks).

(f) For the following data, calculate price index number of 2014 with 2013 as the base year using Fisher's Ideal Index number (6mks).

	2014		**2013**	
	Price (Shs)	Quantity (Kg)	Price (Shs.)	Quantity (Kg).
A	20	8	40	6
B.	50	10	60	5
C.	40	15	50	15
D.	20	20	20	25

QUESTION TWO (20 MKS)

(a) Mention five problems encountered in the construction of index numbers (5mks).

(b) The following data given the ages and blood pressure of 10 men.

Age (years) (X)	56	42	36	47	49	42	60	72	63	55
Blood Pressure (Y)	147	125	118	128	145	140	155	160	149	150

(i) Find the correlation co-efficient between X and Y.

(ii) Determine the least square regression equation of Y and X.

(iii) Estimate the blood pressure of a man whose age is 45 years. (13mks)

(c) Distinguish between primary data and secondary data. (2mks).

QUESTION THREE (20 MKS)

(a) Mention five measures of central tendency (5mks).

(b) In a study of brand loyalty in the automotive industry, new car customers were asked whether the make of their new car was the same as the make of their previous car. The breakdown of 600 responses shows the brand loyalty for domestic, European and American cars.

Purchaser	Domestic	European	American	Total
Same make	125	55	68	248
Difference make	140	105	107	352
Total	265	160	175	600

Test the hypothesis to determine whether brand loyalty is independent of the manufacturer. (**Use α= 0.05**). (8 Mrks)

(c) Compared to the previous year the overheads went up by 32% in 2012, they increased by 40% in the next year and by 50% in the following year. Calculate the average rate of increase in the overhead expenses over the three years. (3mks).

(d) A random sample of 12 families in one city showed an average weekly food expenditure of sh. 1380 with a standard deviation of Shs. 100 and a random sample of 15 families in another city showed an average monthly food expenditure of shs. 1320 with a standard deviation of shs. 120. Test whether the difference between the two means is significant at a level of 0.01. (4mks).

QUESTION FOUR (20 MKS).

(a) Mention four components or elements of time series analysis. (4mks).

(b) A manufacturing firm produces steel pipes in three plants with daily production volumes of 500, 1,000 and 2,000 units respectively. According to past experience it is known that the fractions of defective output produced by the tree plants are at random are 0.005, 0.008 and 0.10 respectively. If a pipe is selected from a day's total production and found to be defective find out.

(i) From which plant for this defective pipe, the probability is highest. (5mks).

(ii) What is the probability that it come from the first plant? (5mks).

(c) Consider the following distribution.

X	0 – 10	10 – 20	20 – 30	30 – 40	40 - 50
Y	12	18	29	25	23

Compute the mean, median and mode. (6mks)