PAN AFRICA CHRISTIAN UNIVERSITY

MASTERS OF BUSINESS ADMINISTRATION

END OF SEMESTER EXAMINATION

DEPARTMENT: BUSINESS

COURSE CODE: MBA 507

COURSE TITLE: QUANTITATIVE ANALYSIS

EXAM DATE: WEDNESDAY 3rd AUGUST 2016

TIME: 9.00AM-12.00PM

INSTRUCTIONS

- Read all questions carefully before attempting.
- Answer Question 1(Compulsory) and any other THREE
- Write your **student number** on the answer booklet provided.

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QUESTION ONE – COMPULSORY (40 marks)

a) Differentiate between discrete and continuous variables as applied in statistical analysis

(4marks)

b) State three advantages of using arithmetic mean as a measure of central tendency

(3marks)

c) The following data represents the marks obtained by 12 candidates who sat for statistics examination: 80,75,66,52,87,87,91,42,68,92,42,67

Determine:

i. The mean mark **(2marks)**

ii. The modal mark **(2 marks)**

iii. The median mark **(2 marks)**

iv. The standard deviation **(3 marks)**

d) By use of an illustration, describe the meaning of the term skewness as used in data analysis **(4 marks)**

e) Using an illustration, differentiate between simple and multiple regression analysis

(4 marks)

f) A statistician run a regression analysis between X and Y and obtained Coefficient of determination value of 0.7906. Explain the statistical interpretation of this value in as far as it relates to variables X and Y **(3marks)**

g) Explain any three methods of establishing correlation between variables **(9 marks)**

h) By the help of an illustration, explain the terms Platykurtic and Leptokurtic in distribution of data

(4 marks)

QUESTION TWO

a) By use of an illustration, describe the term "line of best fit" as applied in regression analysis **(4marks)**

b) Differentiate between dependent and independent variables as used in regression analysis **(4 marks)**

c) A researcher thinks that the number of vehicles of a specific model imported by Kenyans is dependent on their prices. Based on the above belief, he collected the following data during the year 2013.

Price (in dollars)	**No of vehicles (imported)**
2000	3200
4000	3000

6000	2500
8000	2300
9000	1500
11000	1100

Required:

i. Determine and interpret the regression equation that describes the above relationship

(8mrks)

ii. Using the established regression equation, determine the number of vehicles imported when the price rises to 20,000 dollars per vehicle. **(4 marks)**

QUESTION THREE

a) The data below represents the daily wage earned by the employees in a certain company

Income class	No. of employees
300 – 399	30
400 – 499	46
500 – 599	58
600 – 699	76
700 – 799	60
800 – 899	50
900 – 999	20

Determine and interpret:

i. The mean daily wage **(5mrks)**

ii. The median wage **(6mrks)**

iii. The modal wage **(6mrk)**

b) State three limitations of using mode as a measure of central tendency **(3 marks)**

QUESTION FOUR

a) By use of an illustration, briefly describe the meaning of the term normal distribution as used in statistical analysis **(3 marks)**

b) The data below represents the weight of athletes in a competition

Weight class	No. of athletes
110 – 119	5

120 – 129	7
130 - 139	12
140 – 149	20
150 – 159	16
160 – 169	10
170 – 179	7
180 – 189	3

Determine and **interpret**:

i. The standard deviation of the weight **(7mrks)**

ii. The Coefficient of variation **(3mrks)**

iii. Interquartile range **(4mrks)**

iv. The Karl Pearson Coefficient of Skewness **(3mrks)**

QUESTION FIVE

a) By means of an illustration, define the term Correlation as used in statistical analysis **(4 marks)**

b) A statistician collected the following information relating to the width and depth of holes dug in the field by a group of students for agricultural research purposes.

Sample	Width (cms)	Depth (cms)
1	0	0
2	50	10
3	150	28
4	200	42
5	250	59

6	300	51
7	350	73
8	400	85
9	450	104
10	500	96

Using the Spearman Rank correlation technique, determine and interpret the strength of the relationship between the two measurements **(8 marks)**

c) An analyst collected the figures below on variables X and Y

X	14	19	24	21	26	22	15	20	19
Y	31	36	48	37	50	45	33	41	39

Given that the standard deviation values (δ) of variables X and Y are determined as 3.65 and 6.20 respectively, calculate:

i. Covariance between variable X and Y **(4 marks)**

ii. Karl Pearson correlation coefficient between X and Y **(4 marks)**