



THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

MAIN EXAMINATION

P.O. Box 62157
00200 Nairobi - KENYA
Telephone: 891601-6
Fax: 254-20-891084
E-mail: academics@cuea.edu

AUGUST – DECEMBER 2016 TRIMESTER

FACULTY OF ARTS AND SOCIAL SCIENCES

DEPARTMENT OF DEVELOPMENT STUDIES

EVENING PROGRAMME

MDS 516: STATISTICAL TECHNIQUE

Date: DECEMBER 2016

Duration: 3 Hours

INSTRUCTIONS: Answer ANY FOUR Questions

Q1. The following is a set of data from a company:

a) Calculate the mean profits for all the companies.

(7marks)

Profits (\$)	No. of Companies	Profits (\$)	No. of Companies
200 – 400	500	1000 – 1200	100
400 – 600	300	1200 – 1400	80
600 – 800	280	1400 – 1600	20
800 – 1000	120		

b) Explain any four the characteristics of a good mean

(8 marks)

Q2. College believes that a 1- hour review session can improve grades on a mathematics placement exam for incoming fresh students. To test this hypothesis, a placement test is administered to a group of students, and then the students attend the mathematics review session and given a second equivalent placement exam afterwards. The results obtained are as follows:

Pretest	Post test
22	21
26	29
17	15
20	20
28	26
31	32
23	25
13	14
19	19
25	27
28	27
24	25
27	27
18	20

a) State the null and alternative hypothesis **(5 Marks)**

b) Perform a dependent t-test calculation for the given results and determine whether most participants in session tend to improve their placement exam scores at 5% significance level **(10marks)**

Q3. A small company is interested in analyzing the relationship between the money spent on advertising (X) and the total sales (Y). over a five month period, it finds the following results:

X	5	8	10	22
Y	6	15	20	39

a) Use these data to determine the correlation coefficient and comment on the results **(9marks)**

b) Is there any correlation between sales and advertising at the 5% significance level? Support your answer. **(6marks)**

- Q4. Explain the meaning of the following pair of statistical terms
- a) Directional and non-directional hypothesis **(3marks)**
 - b) 1-tail and 2-tail hypothesis **(3marks)**
 - c) Nominal and ratio variables **(3marks)**
 - d) Descriptive and inferential statistics **(3marks)**
 - e) Bivariate and univariate analysis **(3Marks)**

- Q5. A sample of 8 tellers working in a bank serve the following number of customers in a 1-hour period
24, 31, 20, 16, 28, 25, 29.
- a) Find the mean, mode and median and determine whether the values are normally distributed or not **(5marks)**
 - b) Compute the standard deviation for the number of customers served per teller **(5marks)**
 - c) Explain the significance of the standard deviation in research **(5marks)**

- Q6. Given the following type of data set:

X	Y
2	89
10	66
15	60
18	52
27	47
33	53
35	27

- a) Determine the scatter plot and comment on the distribution displayed between X and Y **(3marks)**
- b) Find the regression equation that relates X to Y **(5marks)**
- c) Based on the regression equation, estimate the value of Y given X = 30. Is this a reasonable value? Explain your answer **(5marks)**
- d) Distinguish between correlation and regression analysis in quantitative research **(2marks)**

END