JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

UNIVERSITY EXAMINATION 2012/2013

(KISUMU LEARNING CENTRE)

FIRST YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF ARTS IN PROJECT PLANNING AND MANAGEMENT (PART TIME)

COURSE CODE: APP 802

TITLE: QUANTITATIVE TECHNIQUES

DATE: 16/4/2013 **TIME: 9.00-12.00NOON**

DURATION: 3 HOURS

INSTRUCTIONS

1. This paper contains FIVE (5) questions
2. Answer question 1 (Compulsory) and **ANY** other 2 Questions
3. Write all answers in the booklet provided

Q1a. Discuss the application of quantitative techniques in planning. (6 marks)

b. In scientific inquiry, statistics falls under two categories namely descriptive and inferential statistics. Discuss with illustrations where appropriate your understanding of

i) Descriptive statistics (4 marks)

ii) Inferential statistics (4 marks)

c. Discuss the main steps in undertaking a statistical inquiry in planning (10 marks)

d. Clustering techniques have been applied to a wide variety of research problems. Discuss

(6 marks)

Q2 a. Discuss your understanding of regression analysis in statistics (4 marks)

b) A planner desires to determine the relationship between the floor area and height of buildings. He takes a sample of 5 buildings from a neighbourhood and forms the following paired observations. Use the method of least squares to determine the equation of the straight line which best fits the data. The independent variable is X.

(10 marks)

Y	9	5	7	14	10
X	3	1	2	5	4

c.) Draw a scatter diagram for the data and plot the least squares regression line on the scatter diagram. (6 marks)

Q3a. You have been awarded a consultancy to prepare a planning proposal for the development of Nyalenda Local Physical Development Plan, discuss the various methods of obtaining a representative sample from your target population. (10 marks)

b. In presenting statistical data there are a number of ways of showing the data diagrammatically, explain how and in what circumstances the following could be used

iii) Gantt Chart (5 marks)

iv) Pie chart (5 marks)

Q4a. Discuss the merits of using the following data when conducting statistical investigations

a. Primary data (2 marks)
b. Secondary data (2 marks)

b. The true value of a constant is known to be 3.142. If a researcher claims the measurement to be 3.100, calculate

i) The absolute error (2 marks)

ii) The relative error (2 marks)

iii) The percentage error (2 marks)

c. Explain the situations in which statistical errors may arise (6 marks)

d. Giving examples, distinguish between biased and unbiased error (4 marks)

Q5a. Calculate the standard deviation of the numbers 4 + 3 + 27 + 5 + 1 + 17 + 23 + 9 + 19 (6 marks)

b. Discuss the applications of Time Series Analysis in planning projections 8 marks)

c. Discuss Analysis of Variance (ANOVA) based on the three classes of models you have identified (6 marks)