AFRICA UNIVERSITY
(A United Methodist-Related Institution)

"Investing in Africa's Future"

FACULTY OF MANAGEMENT AND ADMINISTRATION

COURSE TITLE: **MBA 503 – QUANTITATIVE METHODS(EMBA HARARE)**

MODULE 1: **FINAL EXAMINATION – NOV, 2013**

LECTURER: **MR P. TARAMBAWAMWE**

TIME: **3 HOURS**

INSTRUCTIONS

Answer any **FOUR (4)** questions. Total possible mark is **60.**

Start **each** question on a new page in your answer booklet.

The marks allocated to **each** question are shown at the end of the section.

Show all your workings.

Q1. Data can be presented in various ways. This include tables, graphs, statistics and equations. Discuss situations where you would use each of them. Give examples as well as their shortcomings of each method. **[15 marks]**

Q2 (a) Let Z be normally distributed such that the mean is 0 and sd = 1 . Find

i. P(z<1.32) ii. P (z> -2.29) iii. P(-1.43<Z<1.37) [4 marks]

(b) The life of a type of a tyre is normally distributed with a mean of 60 000 kms and a standard deviation of 8 300kms. If the manufacturer warrants the tyres for the first 45 000kms, what proportion of tyres will need to

i. Be replaced under warrant[3 marks]

ii. Go beyond warrant[2 marks]

(c) The height of adult men follows a normal distribution with mean height of 171.5 cm and a standard deviation of 6.5 cm.

i. What is the proportion of men taller that 180cm[2 marks]

ii. Find the proportion of men whose heights are between 165.5cm and 180cm. [2 marks]

iii. What height is exceeded by 5% of the men? [2 marks]

Q3 a. i. What is A null Hypothesis ?[1 **mark]**
ii.When do you reject a hypothesis? **2 marks]**

b

i. Discuss the steps you follow in testing a hypothesis**[5 marks]**
ii. Discuss the types of errors in hypothesis testing. Give examples**[4 marks]**
iii. Write possible sources of errors in hypothesis testing and suggest ways of reducing these errors**?[3 marks]**

Q4 The Association of Accountants is investigating the relationship between performance in Quantitative Methods and hours studied per week and the general level of intelligence of the candidates. The Association has data on seven students which are

Student	Hours(x1)	I.Q(x2)	Exam grade(y)
1	9	99	56
2	6	100	45
3	12	119	80
4	14	95	73
5	11	110	71
6	6	117	55
7	19	98	95

The data was analyzed through SPSS and the results were

$Y=27.46 + 3.68x_{1;}$ $Rx_1= 0.9613$; R^2 $x_1=0.924$

$Y=57.16 + 0.085x_{2;}$ $Rx_2= 0.04$; R^2 $x_2=0.001608$

$Y= -38.06 + 3.96x_1+ 0.6x_{2;}$ $R= 0.9997$; $R^2=0.9995$

a. Explain what these results mean. [12 marks]
b. What is the expected score of a candidate who has worked 13 hours per week and who has an IQ of 102? [3 marks]

Q5. a. With the use of appropriate examples and diagrams show the differences between cyclical variation and seasonal variation in time series analysis. **[8 marks]**

b. What are the limitations of the moving average method system? **[2 marks]**

c) What are the assumptions of the regression method in time series forecasting?

[2 marks]

c. Discuss the situations which could prompt the use of either the regression method or the weighted moving method average as a forecasting tool. Give examples**?[3 marks]**