DEDAN KIMATHI UNIVERSITY OF TECHNOLOGY
UNIVERSITY EXAMINATION ACADEMIC YEAR 2015/2016
FIRST YEAR EXAMINATION FOR THE MASTERS OF SCIENCE IN ECONOMICS

BEC 4106: ECONOMETRICS II

DECEMBER 2015 **TIME: 2 HOURS**

Instructions:
Answer question ONE and any other TWO questions

QUESTION ONE (30 marks)

Hypothesis testing is central to econometric research. In hypothesis testing can be applied to the entire model as well as individual coefficients. In a study on determinants of national output a graduate researcher came up with the following model:
$\hat{A} = 102192\text{-}9075(2053)N_i + 0.3547(0.0727)P_i + 1.288(0.543)I_i$ where figures in brackets are the standard errors, $\hat{A}$ is the dependent variable, N, P and I are the explanatory variables.

You are required to:

a) Explain the steps in hypothesis testing (6mrks)
b) Compute the t values for individual coefficients (3mrks)
c) Compute the 90 percent confidence interval associated with P_i. (1 mrk)
d) Propose and explain two model diagnostic statistics. (10 mrks)
e) Draw a clear distinction between t test and p values in hypothesis testing. (4 marks).
f) If the researcher used time series data explain how he can detect and cure autocorrelation. (6mrks).

QUESTION TWO (15 marks)

A Cobb- Doughlas production function is the following form $Y = AX1^{\alpha}X2^{\beta}$ where Y is output, A is technical coefficient, X1 and X2 are the two inputs used in the production process. You are required to explain the following:

a) The procedure for double log transformation of this model: show steps. (6mrks)
b) Following 2(a), discuss candidly what more variables you will need to generate after inputting data on Y, X_1 and X_2. (5mrks)
c) Compare the results from this model with those you could have obtained from multiple linear regression. (4mrks)

QUESTION THREE (15marks)

Many business scenarios can best be modeled using a simultaneous equation model. In this model, one variable can be both on the left hand side and right hand side and other variables are predetermined.

a) Using hypothetical illustration show the structure of a market system. (3 mrks).

b) Clearly distinguish between endogenous and exogenous variables in simultaneous equation estimation. (2mrks)
c) The order and rank conditions (5mrks)
d) The choice of estimation techniques in simultaneous equation systems. (5mrks)

QUESTION FOUR (15 marks)

Examine the following

a) The linear expenditure system in modeling food demand (5mks)
b) Discrete choice models in modeling technologies (5mks)
c) Maximum likelihood estimation (5mks)