

KABARAK



UNIVERSITY

EXAMINATIONS

2008/2009 ACADEMIC YEAR

**FOR THE DEGREE OF BACHELOR OF SCIENCE IN
ECONOMICS & MATHEMATICS**

COURSE CODE: ECON 322

COURSE TITLE: ECONOMETRICS II

STREAM: Y4S2

DAY: THURSDAY

TIME: 9.00 – 11.00 A.M.

DATE: 26/03/2009

INSTRUCTIONS:

1. Answer question **ONE** and any other **TWO** questions.
2. Question **ONE** carries thirty (30 Marks) and the rest (20) Marks each.
3. Show all your workings clearly.

PLEASE TURN OVER

QUESTION ONE

- a) Define the following terms:
- i) Spurious regression (2mks)
 - ii) Order of integration (2mks)
 - iii) Simultaneous equations bias (2mks)
 - iv) Coefficient of determination (2mks)
- b) Explain the main assumptions of multiple regression model. (5mks)
- c) An econometrician wanted to investigate the effects of family household income (Y) and family size (F) on consumption expenditure (C). Using 89 households he came up with the following information;

$$(X'X) = \begin{bmatrix} 50.50 & -66.20 \\ -66.20 & 967.1 \end{bmatrix}$$

$$(X'X)^{-1} = \begin{bmatrix} 0.0218 & 0.0015 \\ 0.0015 & 0.0010 \end{bmatrix}$$

$$X'Y = \begin{bmatrix} 36.8 \\ 39.1 \end{bmatrix}$$

$$C'C = 113.6,$$

$$\bar{C} = 5.8$$

$$\bar{Y} = 2.9,$$

$$\bar{F} = 3.9$$

- i) Specify the model to be estimated (3mks)
- ii) Estimate the model and interpret your results (7mks)
- iii) Calculate the variance covariance matrix of the parameter estimates (4mks)
- iv) Conduct test of hypothesis on the partial slope coefficients on a priori condition. (3mks)

QUESTION TWO

- a) Explain the consequences of omitting a relevant variable in an econometric model.
- b) Explain the significance of dummy variable(s) in an econometric model. (6mks)
- c) Explain any two methods used to explain the order of integration of a time series. (8mks)

QUESTION THREE

The following computations in original values were obtained from a data on quantity demanded (Y), its own price (X_1) and the price of some other good (X_2);

$$\begin{array}{lll} N = 10 & \Sigma X_2 = 5 & \Sigma X_1 Y = 26210 \\ \Sigma Y = 330 & \Sigma Y^2 = 11700 & \Sigma X_2 Y = 190 \\ \Sigma X_1 = 787 & \Sigma X_1^2 = 64527 & \\ \Sigma X_1 X_2 = 456 & \Sigma X_2^2 = 5 & \end{array}$$

- i) Specify a demand function based on the above information (3mks)
- ii) Estimate the function in (i) and interpret your results. (11mks)
- iii) What is the relationship that exists between the two goods? Give reasons for your answer. (3mks)
- iv) Forecast the quantity demanded of Y_f if $X_{1f} = 10$ and $X_{2f} = 20$ (3mks)

QUESTION FOUR

Given the following macroeconomic model

$$\begin{array}{ll} C_t = \beta_0 + \beta_1 Y_t + \beta_2 C_{t-1} + \varepsilon_1 & \text{(Consumption function)} \\ L_t = \alpha_0 + \alpha_1 Y_{t-1} + \alpha_2 Y_t + \varepsilon_2 & \text{(Investment function)} \\ Y_t = C_t + I_t + G_t & \text{(Definitional equation)} \end{array}$$

- a)
 - i) Identify the pre-determined and endogenous variables in the model. (3mks)
 - ii) Using order and rank condition establish the identification state of consumption and investment. (12mks)
 - iii) What method is appropriate to estimate investment and consumption function? Give reasons for your answer. (3mks)
- b) Explain the consequences of simultaneous equations bias (2mks)

QUESTION FIVE

An economics student wanted to analyze the effects of interest rate (R) and economic growth (G) on investment (I) using the following data;

R	G	I
5	8	6
2	11	12
1	9	10
3	6	7
4	6	3

- i) Specify a regression model to be estimated (3mks)
- ii) Estimate the model and interpret your results. (10mks)
- iii) Conduct statistical test of the partial slope coefficient at 5% level of significance. (7mks)