

KABARAK



UNIVERSITY

EXAMINATIONS

2008/2009 ACADEMIC YEAR

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

COURSE CODE: ECON 312

COURSE TITLE: ECONOMETRICS I

STREAM: Y3S2

DAY: WEDNESDAY

TIME: 9.00 – 11.00 A.M.

DATE: 18/03/2009

INSTRUCTIONS:

1. Answer question **ONE** and any other **TWO** questions.

PLEASE TURN OVER

QUESTION ONE

- a) Explain the assumptions of classical linear regression (8mks)
- b) The following data refers to the demand for apples Y, in kg and the price of apples X, in Ksh. Per kg on 10 different market stalls:

Y	99	91	70	79	60	55	70	101	81	67
X	22	24	23	26	27	24	25	23	22	26

Required:

- i) Assuming $Y = \alpha + \beta X + \epsilon$, obtain the OLS estimators of α and β . (8mks)
- ii) Explain the reasons why a disturbance term ϵ exists. (5mks)
- c) Discuss the desirable properties of an econometric model. (6mks)
- d) Explain the main objectives of econometrics (3mks)

QUESTION TWO

- a) As an econometrician, what methodology would you consider appropriate to undertake in studying an economic phenomenon? Briefly explain each one of the steps you have chosen. (14mks)
- b) An econometrician has specified and estimated an econometric relationship. His results show that the estimate and the “a priori” expected signs and magnitudes of one of the coefficients disagree. Should he accept or reject these results. Explain with an example. (6mks)

QUESTION THREE

- a) In the Keynesian consumption function:

$$C_t = a + \delta Y_t^d$$

the estimated marginal propensity to consume is simply δ while the average propensity to consume is $\frac{C}{Y^d} = \frac{\hat{a}}{y^d} + \hat{\delta}$. Using data from 200 households on annual income and consumption, we found the following regression equation:

$$C_t = 138.52 + 0.725Y_t^d \quad R^2 = 0.862 \quad R = 0.928$$

- i) Provide an interpretation of the constant in this equation and comment about its sign and magnitude. (3mks)
 - ii) Interpret the value of R^2 and R (4mks)
 - iii) Calculate the predicted consumption of a hypothetical household with annual income of shs.40,000. (3mks)
- b) With examples, explain the difference between deterministic and stochastic relations. (4mks)
- c) Prove that the OLS coefficient for the slope parameter in the simple linear regression model is BLUE. (6mks)

QUESTION FOUR

Write short notes on the following terms:

- i) Dummy variables (5mks)
- ii) Multicollinearity (5mks)
- iii) Autocorrelation (5mks)
- iv) Cointegration (5mks)

QUESTION FIVE

- a) Prove that the OLS estimates for the parameters in the multiple regression model is unbiased (i.e prove that $\hat{\beta}$ is an unbiased estimator of β) (6mks)
- b) Discuss the problems associated with the use of R^2 in judging the performance of a single equation, or as a basis of comparison of different equations. (10mks)
- c) Examine the steps that should be followed when testing the significance of the OLS coefficients. (4mks)