MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF ECONOMICS

FOURTH YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF ECONOMICS AND FINANCE

BACHELOR OF ECONOMICS

EES 404: ECONOMETRIC MODELING AND METHODS

DATE: 11/12/2019   **TIME: 2.00-4.00 PM**

INSTRUCTIONS:

Answer Question ONE and any other TWO questions

QUESTION ONE (COMPULSORY) (30 MARKS)

a)   Briefly explain the following types of data used for empirical analysis

    i)   Cross-sectional data

    ii)   Time series data

    iii)   Pooled data   (6 marks)

b)   State four reasons for including an error term/disturbance term (u) in a stochastic economic model   (4 marks)

c)   Briefly explain four types of economic models   (8 marks)

d)   The following table shows the amounts in thousands of units of a certain commodity purchased at various prices in Kenya shillings over a period of ten months in a certain market.

Amount	54	58	61	69	72	81	88	99	118	194
Price per unit	61	54	50	43	38	36	28	23	19	10

    i)   Estimate and interpret the linear demand function   (6 marks)

    ii)   Compute the coefficient of determination and interpret it   (2 marks)

    iii)   Find the price elasticity of demand at a price of KShs 65 per unit of the commodity

(4 marks)

QUESTION TWO (20 MARKS)

A research firm intends to conduct a survey to determine the factors influencing the sales of farm produce in a local market. The firm will have to build an appropriate economic model to estimate the sales.

a) Briefly explain the steps that should be followed to develop this economic model(10 marks)

b) Explain five criteria for judging the validity of such a model   (5 marks)

c) Describe five uses of such an economic model   (5 marks)

QUESTION THREE (20 MARKS)

An Economics major student did a study to examine the impact of monthly incomes (X) on households' monthly consumption (Y). She sampled ten households and obtained the following results of monthly incomes and consumption in thousands and hundreds of Kenya shillings respectively

$\Sigma X = 777$ $\Sigma Y = 1,657$ $\Sigma X^2 = 70,903$ $\Sigma XY = 132,938$ $\Sigma Y^2 = 277,119$

a) Estimate a linear consumption function for the household   (6 marks)

b) Interpret the estimated consumption function   (4 marks)

c) Estimate the MPC and MPS and interpret them   (4 marks)

d) Evaluate the above-estimated function on the basis of the following

   i) The economic theory of consumption   (3 marks)

   ii) Statistical criteria R^2 (3 marks)

QUESTION FOUR (20 MARKS)

a) State five elements of an economic model   (5 marks)

b)   Discuss methodology used by econometricians to conduct empirical economic analysis using Keynesian theory of consumption   (15 marks)

QUESTION FIVE (20 MARKS)

An institute of economic analysis conducted a study to determine the influence of six economic variables on foreign direct investment inflows (fdi) of different countries. The variables were expressed as follows: degree of openness (i.e. open), gross domestic product (gdp), external debt (exd), inflation (inf), lending interest rate (lir) and internet use (internetuse). A regression analysis was conducted using STATA and the following results were generated.

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. reg fdi open gdp exd inf lir internetusersper100people

      Source |       SS       df       MS              Number of obs =     120
-------------+------------------------------           F(  6,   113) =   17.68
       Model |  779.22316      6  129.870527           Prob > F      =  0.0000
    Residual |  830.21382    113  7.34702495           R-squared     =  0.4842
-------------+------------------------------           Adj R-squared =  0.4568
       Total |  1609.43698   119  13.5246805           Root MSE      =  2.7105

-------------+----------------------------------------------------------------
         fdi |     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        open |   .0344376   .0082265     4.19   0.000     .0181393    .0507358
         gdp |   .1154351   .0667599     1.73   0.087    -.0168282    .2476985
         exd |   .0170358   .0064207     2.65   0.009     .0043152    .0297564
         inf |  -.033244    .0355031    -0.94   0.351    -.1035821    .0370941
         lir |   .0981892   .0338221     2.90   0.004     .0311816    .1651968
 internetus~e |   .0949059   .0454593     2.09   0.039     .0048429    .1849689
       _cons |  -2.914588   1.102388    -2.64   0.009    -5.098617   -.7305596
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a) Write down the econometric and the estimated regression equations   (4 marks)

b) Discuss the regression results above in terms of the statistical significance of the estimated coefficients of the model   (6 marks)

c) Evaluate the model on the basis of the R-squared and F-test.   (4 marks)

d) Discuss two policy recommendations from the regression results above.   (4 marks)