MACHAKOS UNIVERSITY

University Examinations for 2018/2019 Academic Year

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF ECONOMICS

FOURTH YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF ECONOMICS AND FINANCE

EES 404: ECONOMETRIC MODELING AND METHODS

DATE: 2/5/2019 **TIME: 8:30 – 10:30 AM**

INSTRUCTIONS: Answer Question ONE and any other TWO questions

QUESTION ONE (COMPULSORY 30 MARKS)

a) Explain five elements of a typical economic model (5 marks)

b) Briefly explain four types of economic models. (8 marks)

c) The national income model for an economy is represented as follows (units are in millions of US dollars)

$Y = C + I + G + X - M$	where:	Y = National income
$C = 332 + 0.68Y$		C = Consumption expenditure
$I = 244 + 0.16Y$		I = Investment expenditure
$G = 770$		G = Government expenditure
$X = 950$		X = Exports
$M = 392 + 0.18Y$		M = Imports

i) Identify the endogenous and exogenous variables in the model (2 marks)

ii) Find the equilibrium values of the country's national income and net exports. Is the country a net importer or net exporter? Why? (6 marks)

d) State five advantages and four disadvantages of simulation in economic modelling (9 marks)

QUESTION TWO (20 MARKS)

Make brief notes on the premises, uses, assumptions, structure, application and limitations of the following economic models

a) The KIPPRA-Treasury Macroeconomic model (10 marks)

b) The World Bank Revised Minimum Standard model (10 marks)

QUESTION THREE (20 MARKS)

Toyota Kenya intends to introduce a recently manufactured brand of a Toyota car into the Kenyan market. The company would want to conduct a market survey and build an economic model for the demand of the new Toyota car.

a) State four major explanatory variables that you would recommend for the model based on economic theory and hence specify the general form of the model (5 marks)

b) Explain the a priori expectations on the signs of the coefficients for each of the variables stated in part a above based on economic theory (4 marks)

c) Explain the checklist that the company can use to evaluate the quality of the regression estimates of the model (6 marks)

d) Suppose the car was sold at six car yards located in different regions at various prices in hundreds of thousands for a period of time and the following data were recorded.

Price per unit ('00,000)	15	9	14	10	12	13
No. of cars bought	50	95	56	89	78	64

Estimate the demand function for the new brand and interpret the regression results (5 marks)

QUESTION FOUR (20MARKS)

The Central Bank of Kenya would like to establish an economic model for determinants of the supply of loans to small medium enterprises by the commercial banks

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 FIVE (20MARKS)

A researcher was interested in determining the factors that influence foreign direct investment inflows (FDI) in different countries. After doing literature review the researcher identified six possible determinants of FDI inflows namely the degree of openness GDP growth rate, debt service on the external debt, Inflation rate, lending interest rate and internet use. The researcher conducted regression analysis using STATA and generated the following output presented in the table below.

Table 1: Regression Results

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	0.0344376	.0082265	4.19	0.000	.0181393 0.0507358	
gdp	0.1154351	0.0667599	1.73	0.087	-0.0168282 0.2476985	
exd	0.0170358	0.0064207	2.65	0.009	0.0043152 0.02975641	
inf	-0.033244	0.0355031	-0.94	0.351	-0.1035821 -0.1035821	
lir	0.0981892	0.0338221	2.90	0.004	0.0311816 0.1651968	
Internet-use	0.0949059	0.0454593	2.09	0.039	0.0048429 0.1849689	
-Cons	-2.914588	1.102388	-2.64	0.009	-5.098617 -0.7305596	

Using the above regression results:

i) Write down the econometric model for the study clearly defining the model (4 marks)

ii) Write down the estimated model and interpret it (8 marks)

iii) Which variable(s) according to their study have an impact on foreign exchange rate in Kenya? Support your answer (4 marks)

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