EASTERN UNIVERSITY, SRI LANKA

FOURTH YEAR FIRST SEMESTER EXAMINATION IN AGRICULTURE – 2010/2011

AEC 4105 – BASIC ECONOMETRICS

Answer **ALL** Questions

Time allowed: 02 hours

01) a) What are the analytical tools used in econometrics?

b) How can these tools be used in agricultural economics? Explain with two appropriate examples.

c) What do you understand by cross sectional and transitional data?

d) What are the different kinds of variables that you have learned? Give two examples for each of them.

02) The model summary and ANOVA table details of a simple regression analysis is shown below.

Regression results

Model Summary

Model 1	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.485(a)	.235	.230	63006.107

a Predictors: (Constant), AgLand

ANOVA

Model	Sum of squares	df	Mean square	F	Sig.
Regression	191747559599.768	1	191747559599.768	48.302	.000
Residual	623253814359.232	157	3969769518.212		
Total	815001373959.001	158			

a Predictors: (Constant), AgLand

b Dependent Variable: farm income

a) i) Write down the mathematical model used for the above regression.

ii) Interpret the R^2 value shown here.

iii) How **adjusted R^2** differs from the R^2 value.

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b) i) What are the two sources of variation shown in the ANOVA table?

ii) Which of these parts show variations accounted by the model?

iii) Interpret the regression and residual sums of squares shown here.

iv) What can you say about the model built here?

03) The following table shows the results of multiple regression analysis to examine the effect of different independent variables on non-farm income.

Determinants of non-farm income: OLS regression results		
Independent variables	Coefficient	Sig
Distance to market	0.008	0.15
Fruits and vegetables acreage	-0.007	0.03
Attended high school	-0.129	0.32
Age	0.074	0.00
Dependency ratio	-0.164	0.00

$(P < 0.05)$

i) Write down the estimated equation for the above model.

ii) Interpret the effects of each independent variable on non-farm income.

04) The following are the tests and examinations to check whether the given data violates the assumptions of linear regression analysis. Interpret the results given below.

i) Durbin Watson test value was 1.09.

ii) Error variance increases for all level s of independent variables.

iii) Correlation co-efficient value between Y and x1 is lesser than x1 and x2.

iv) Sixty three percent of the data points fell between the interval of mean ± one Standard Deviation. (Mean ± 1SD)