Uva Wellassa University
Faculty of Animal Science & Export Agriculture
BSc in Export Agriculture

End Semester Examination – July/ August 2016
Year IV Semester I

Econometrics (EAG 330-2)

Instructions

Answer **all** questions.
No. of questions : Two (02)
No. of pages : Three (03)
Total marks allocated : 60%
Time : One Hour (01 hr)

Part II – Essay

1.

a.

i. What is meant by econometrics? (04 Marks)

ii. List 8 steps involved in the traditional econometrics methodology (16 Marks)

b.

i. What is meant by a hypothesis? (05 Marks)

ii. List the steps involved in hypothesis testing (10 Marks)

iii. What do you mean by type –I error and type –II error in hypothesis testing (10 Marks)

iv. To reduce the late attendance of the workers, tea factories of Badulla district introduced a new motivational package for the factory workers. Average number of late attendance per day before and after the motivational package in ten tea factories is given below. Test whether there is a significant impact of the motivational package. (20 Marks)

Factory	A	B	C	D	E	F	G	H	I	J
Late attendance (Before)	23	12	8	31	14	3	5	14	16	9
Late attendance (After)	15	9	8	27	15	3	6	10	12	5

c. Briefly explain the following (15 Marks)
   i. Cross sectional data
   ii. Panel data
   iii. Time series data

d. Stating the nature of the dependent variable, give two practical examples where the researchers use each of the following models (20 Marks)
   i. Logit model
   ii. Tobit model
   iii. Multinomial logit model
   iv. Ordered logit model

2.

a. A travel agency found that their profits are increasing with the increase of mileage travelled. In order to verify the fact, a study was conducted and data were collected on the mileage of each travel and the income. (20 Marks)
   i. How would you study the relationship between two variables?
   ii. How would you investigate the degree of income variability explained by mileage?

b. Identify the dependent and independent variables in each case given below (20 Marks)
   i. Time spent working on a paper and the grade received
   ii. Yield per plant and plant density
   iii. Amount of K applied per plot and total solid contents of fruit
   iv. Milk yield per day of cow and diet intake per day

c. Six different amounts of fertilizer were applied to separate plots of sugar beet and the yield recorded is given in the following table (25 Marks)

Amount of Fertilizer (kg/ac)	0.5	1	2	3	4	6
Yield (kg/ ac)	10	15	25	35	50	75

i. Draw a scatter diagram and identify a possible relationship

ii. Determine the regression model according to the relationship identified in part (i)

iii. Estimate the yield when Amount of Fertilizer (kg/ac) = 12 and comment on it.

d. The table given below shows the yield of sugar beet and 14 different amounts of fertilizer which were applied to separated plots of crop.

Plot	Yield (kg/ac)	Amount of fertilizer (kg/ac)
1	24	12
2	18	5
3	31	15
4	33	17
5	26	20
6	30	14
7	20	6
8	25	23
9	25	11
10	27	13
11	21	8
12	29	18
13	29	22
14	26	25

(Hint: no need to estimate a regression function using the given data)

i. If you are to estimate a regression model, will a linear equation adequately represent the model? Justify your answer. (10 Marks)

ii. Write down the expected regression equation (05 Marks)

iii. What assumptions do you make about the error term of the model? (10 Marks)

iv. Assuming that the estimated R^2 is 38%, how do you interpret this result? Is this a better model? (10 Marks)

Statistical Equations

$$t = \frac{\bar{d}}{s/\sqrt{n}}$$