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(*Knowledge for Development*)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS

2017/2018 ACADEMIC YEAR

FOURTH YEAR 1st SEMESTER

SPECIAL/SUPPLEMENTARY EXAMINATION

FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURAL ECONOMICS & RESOURCE MANAGEMENT

COURSE CODE: IAE 485

COURSE TITLE: ECONOMETRIC

DATE: 5/10/2018. **TIME:** ~~**2 hours**~~ 8 – 10 Am.

INSTRUCTIONS TO CANDIDATES

Answer **Question 1** and any other two (2) Questions.

QUESTION ONE:

a) State the Gauss Markov theorem (2mks)
b) Explain any four assumptions underlying the simple classical linear regression model (4mks)
c) Examine the causes of autocorrelation in regression estimation (4mks)
d) Clearly explain the steps used to test for autocorrelation using Breusch-Pagan-Godfrey test (5mks)
e) The following data relates to income levels and expenses of food in thousands of shillings.

Income	35	49	21	39	15	28	25
Food expenditure	9	15	7	11	5	8	9

Calculate the pearson correlation for the relationship between income and food expenditure and interpret your results (10mks)

f) Distinguish between the following where necessary:
   i. Standard error vs standard deviation (2mks)
   ii. Goodness of fit vs test significance (2mks)
   iii. Define econometrics (1mk)

QUESTION TWO

a) Clear explain the steps that constitute an econometric research methodology (10mks)
b) Explain the properties of a good instrumental variable (5mks)
c) Discuss two methods used to correct the problem of multicollinearity in a regression model (5mks)

QUESTION THREE

A regression model is given as: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon_I$ was estimated and the following results were obtained:

$$Y = 0.57 + 2.2X_1 + 3.22\,X_2 - 1.05X_3$$

SE: (0.24) (1.11) (1.5) (0.45)

N=25 and adjusted R squared = 0.82

i) Interpret each of the coefficients in the model and the adjusted R
ii) Using a significance level of 5%, which of the variables X_1 X_2 X_3 are statistically significant? (12mks)

QUESTION FOUR

Consider the following ANOVA table for the regression equation $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + u$, for a sample of 30 observations.

Source	Sum of squares	Degrees of freedom	Mean sum of squares	F-ratio
Regression	20029.3	b	e	g
Residual	12691.5396	c	f	
Total	a	d		

i) Find the values of a to g (7mks)

ii) Stating the null hypothesis, test whether there is statistically significant relationship between the independent variables and dependent variables at 5% level of significance (4mks)

iii) Calculate the standard deviation of the regression model (3mks)

iv) Calculate the adjusted r-squared and interpret the coefficient (6mks)