The University of Kansas

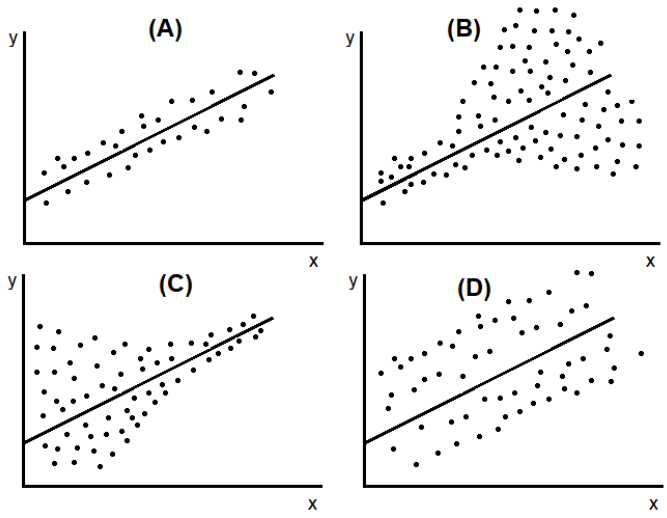
Department of Economics

Quiz 5 **Oct/26/2018**

Econ 526 - Introduction to Econometrics **Instructor: Caio Vigo Pereira**

Name:

SECTION A - MULTIPLE CHOICE



10% 1. Consider the 4 models above. Which models present homoskedastic errors?

A. Only (A)
B. Only (D)
C. (A) and (D)
D. (B) and (C)

SECTION B - TRUE OR FALSE

Consider a random sample with 705 observations of house purchases in Kansas. Your dataset consists of the following variables (variable's name and variable description):

house_price	price paid in thousands of dollars
number_bedrs	number of bedrooms
number_masterbedrs	number of master bedrooms
number_fullbaths	number of full bathrooms
number_halfbaths	number of half bathrooms
number_baths	= number_fullbaths + number_halfbaths
year_construction	year of the construction of the house
crime_rate	crime rate in the neighborhood
lot_size	lot size in square feet

10% 1. Consider the following regression model:

$$log(house\_price) = \beta_0 + \beta_1 log(lot\_size) + log(\beta_2) crime\_rate + u$$

where $log()$ represents the natural logarithm. Then this model is linear in parameters.
◯ True ◯ False

10% 2. Consider the following regression model:

$$house\_price = \beta_0 + \beta_1 number\_bedrs + \beta_2 number\_masterbedrs + u$$

Then this model suffers from perfect collinearity.
◯ True ◯ False

10% 3. Consider the following regression model:

$$house\_price = \beta_0 + \beta_1 number\_bedrs + \beta_2 number\_baths + \beta_3 number\_fullbaths + \beta_4 number\_halfbaths + u$$

Then this model suffers from perfect collinearity.
◯ True ◯ False

10% 4. Consider the same regression model, i.e.:

$$house\_price = \beta_0 + \beta_1 number\_bedrs + \beta_2 number\_baths + \beta_3 number\_fullbaths + \beta_4 number\_halfbaths + u$$

If we run an OLS regression for this model, we will have 701 degrees of freedom.
◯ True ◯ False

10% 5. When we have multicollinearity the OLS estimator is biased.
◯ True ◯ False

SECTION C - SHORT ANSWER

40% 1. The **Gauss-Markov Theorem** states that under MLR.1 through MLR. 5 (i.e., Gauss-Markov assumptions) the OLS estimators of the parameters of a regression model are BLUE.

(a) What "E" stands for? Explain.
(b) What "U" stands for? Explain.
(c) What "L" stands for? Explain.
(d) What "B" stands for? Explain.