

**Question / Write the difference between of the following.**

- 1- Time series data & Cross-section data.
- 2- Simple linear regression model & Multi linear regression
- 3- Dependent variable & Independent variable
- 4-  $\beta_0$  parameter &  $\beta_1$  parameter
- 5- Standard Deviation ( $\sigma$ ) & Coefficient of Determination ( $R^2$ )
- 6- T-test & Coefficient of Determination ( $R^2$ )
- 7- parameter & observations
- 8-  $Y_i$  parameter &  $X_i$  parameter
- 9-  $\beta_i$  parameter &  $u_i$  parameter
- 10- Economic Policymaking & Forecasting
- 11- Criterion of Statistical & Standard tests
- 12-  $\beta_1$  Equation in a Real way &  $\beta_1$  Equation a Deviation way

**Question/** What are the Econometrics?

**Question/** What's the Econometrics Models?

**Question/** explain the Aims of econometrics.

**Question/** explain the Types of data in Econometrics, and describe each of them in summary.

**Question/** What are the Specification of the model?

**Question/** What are the Estimation of the model?

**Question/** What are the Testing of the model?

**Question/** What are the Application of the model?

**Question/** explain the simple linear regression model, and describe the linear models.

**Question/** explain the ordinary least squares method, and why use this method.

**Question/** What are the reasons for inserting a random variable (UI) into the model?

**Question /** explain the following expressions then give an example for each of them.

- 1- Model
- 2- Econometrics Forecasting
- 3-  $\beta_0$  parameter
- 4-  $\beta_1$  parameter
- 5-  $u_i$  parameter
- 6- Dependent variable
- 7- Independent variable
- 8- Coefficient of Determination ( $R^2$ )
- 9- Standard Deviation ( $\sigma$ )
- 10- T-test
- 11- parameter
- 12- Observations
- 13- Hypothesis
- 14- Degree of freedom
- 15- Time series data
- 16- Cross-section data
- 17- Panel data:
- 18- Dummy variable data

### Question /choose the right answer choice

- **Econometrics is the branch of economics that \_\_\_\_\_.**
  - a. studies the behavior of individual economic agents in making economic decisions
  - b. develops and uses statistical methods for estimating economic relationships**
  - c. deals with the performance, structure, behavior, and decision-making of an economy as a whole
  - d. applies mathematical methods to represent economic theories and solve economic problems.
  
- **Variables from period data are called \_\_\_\_\_.**
  - a. cross-sectional data
  - b. time series data**
  - c. observational data
  - d. panel data
  
- **The term 'u' in an econometric model is usually referred to as the \_\_\_\_\_.**
  - a. error term**
  - b. parameter
  - c. hypothesis
  - d. dependent variable
  
- **The parameters of an econometric model \_\_\_\_\_.**
  - a. include all unobserved factors affecting the variable being studied
  - b. describe the strength of the relationship between the variable under study and the factors affecting it**
  - c. refer to the explanatory variables included in the model
  - d. refer to the predictions that can be made using the model

-Which of the following is the first step in empirical economic analysis?

- a. Collection of data
- b. Statement of hypotheses
- c. Specification of an econometric model**
- d. Testing of hypotheses

- A data set that consists of a sample of individuals, households, firms, cities, states, countries, or a variety of other units, taken at a given point in time, is called a(n) \_\_\_\_\_.

- a. cross-sectional data set**
- b. longitudinal data set
- c. time series data set
- d. experimental data set

- Data on the income of law graduates collected at different times during the same year is \_\_\_\_\_.

- a. panel data
- b. experimental data
- c. time series data
- d. cross-sectional data**

-Which of the following is an example of time series data?

- a. Data on the unemployment rates in different parts of a country during a year.
- b. Data on the consumption of wheat by 200 households during a year.
- c. Data on the gross domestic product of a country over a period of 10 years.**
- d. Data on the number of vacancies in various departments of an organization on

-Which of the following refers to panel data?

- a. Data on the unemployment rate in a country over a 5-year period
- b. Data on the birth rate, death rate and population growth rate in developing countries over a 10-year period.**
- c. Data on the income of 5 members of a family on a particular year.
- d. Data on the price of a company's share during a year.

-. \_\_\_\_\_ has a causal effect on \_\_\_\_\_.

- a. Income; unemployment
- b. Height; health
- c. Income; consumption**
- d. Age; wage

- A dependent variable is also known as a(n) \_\_\_\_\_.

- a. explanatory variable
- b. control variable
- c. predictor variable
- d. response variable**

- If a change in variable x causes a change in variable y, variable x is called the \_\_\_\_\_.

- a. dependent variable
- b. explained variable
- c. Independent variable**
- d. response variable

- In the equation  $y = \beta_0 + \beta_1 x + u$ ,  $\beta_0$  is the \_\_\_\_\_.

- a. dependent variable
- b. independent variable
- c. slope parameter
- d. intercept parameter**

- What does the equation  $y = \beta_0 + \beta_1 x_1 + u$

- a. The explained sum of squares
- b. The total sum of squares

c. The sample regression function      d. The population regression function

- The value of  $R^2$  always \_\_\_\_\_.

- a. lies below 0      b. lies above 1      c. lies between 0 and 1      d. lies between 1 and 1.5

- Which of the following is a statistic that can be used to test hypotheses about a single population parameter?

- a. F statistic  
b. t statistic  
c.  $\bar{Y}$  statistic  
d.  $R^2$

**Question** /which of the following statements is true?

- 1- Standard errors must always be positive.      True  
2- A cross-sectional data set consists of observations on a variable or several variables over time.      False  
3- A time series data is also called a longitudinal data set.      False  
4-  $R^2$  is the ratio of the explained variation compared to the total variation.      True

**Question/** The following data represent the quantities of a particular commodity ( $Y_i$ ) and its price ( $X_i$ ) during specific time period:

n	$\sum Y_i$	$\sum X_i$	$\sum X_i^2$	$\sum X_i Y_i$	$\sum X_i^2$	$\sum Y_i^2$	$\sum X_i Y_i$	$\sum \hat{Y}_i^2$	$\sum e_i^2$
12	756	108	1020	6960	48	894	156	507	386.98

**Required :**

- 1- Supply function estimation and explanation.  
2- Calculation of the coefficient of determination ( $R^2$ ).  
3- Calculate the standard deviation (SD) to determine the degree of confidence of the estimates.  
4- Calculation of the t-test for the significance of the estimated parameters.

**Note:** the t- table in the level of significance (0.05) and degrees of freedom ( $n-k=10$ ) equal to (2.228).