

## QUESTION SET

**Question 1.** Provide results for following calculations.

- If the value of the South African rand went from 8 per dollar to 29 per dollar, provide whether the rand appreciated or depreciated against dollar, and by what percent.
- If a country's GDP went from \$45 billion in 1997 to \$39 billion in 2011, provide the average annual percent change in the GDP.
- Provide annualized inflation rate for a month to month change in CPI of 2.3 percent.
- For following per capita GDPs (\$, PPP adjusted), provide the index value for Hong Kong if US is base entity. Argentina: 9000; China: 4000; Hong Kong: 24500; United States: 45000; Vietnam: 2000
- Provide average annual percent change for the following year by year percent changes:  
2007: 3.5    2008: 34.5    2009: -9.7    2010: 3.2    2011: 18.7.
- If nominal wage rate is \$17.89 per hour in 2008 and \$19.45 per hour in 2011, and CPI is 123.4 in 2008 and 132.6 in 2011, base year 2004=100, provide real wages for 2008 and 2011, in prices of 2008.
- For a data series that has a 2011 value of 154.3 and expected future growth of 3.2 percent a year, provide the projected value for 2050.
- Convert each of the following foreign currency values into US dollars, using the provided exchange rates of the currency with the dollar.

Foreign Currency Value	Exchange Rate with Dollar
i) 456 Euros	\$1.45/Euro
ii) 156849 Yen	79 Yen per Dollar
iii) 9847 Mexican Pesos	12.11 Pesos per Dollar
- The elderly dependency ratio is defined as the number of people over 65 relative to those 19-64. If there are 4.5 million people over 65 and 6.2 million people 19-64, provide the elderly dependency ratio.

**Question 2.** From data shown at bottom of question, construct a table.

Country: Hypothetica

Years of Data: 2008 to 2011

GDP growth for those years, in percent: 2.3 -5.634 3.2 4.5

Current Account Balance for those years: in percent of GDP: -3.444 -1.234 1.389 -0.987

Inflation for those years, in percent: 1.1 1.1 3.4 2.3

Source: Hypothetica Central Bank Website

Unemployment Rate for those years, in percent of labor force: 7.8 12.3 14.1 11.1

Exchange Rate for those years, in LC/\$: 1.323 1.234 1.456 1.678

External Debt for those years, in percent of GDP: 45.6 48.7 52.2 50.1

**Question 3.** Provide 2 data series from Question 2 that could be graphed in their original units in the same chart.

**Question 4.** Provide 1, and only 1, type of chart that would be appropriate to use to show each of following statistical results. Types may be repeated.

- a. Year by year Real GDP growth, for last 10 years
- b. Destinations for a country's exports, for a single year
- c. Relationship between changes in GDP and changes in unemployment
- d. Crime rates for 19 US cities
- e. Trend in an exchange rate for last 4 years, monthly data
- f. Year by year product breakdown of a country's exports, for each of last 7 years

**Question 5.** For regression shown below, provide interpretation of each of (a)-(g).

Dependent Variable: Unemployment Rate, percentage points

Independent Variable 1: GDP, \$ billions

Independent Variable 2: Wage Rate, \$/hour

- a. Number of Observations: 74
- b. Adjusted R Squared: .89
- c. F Test Score: 78.45
- d. T Test Score for Independent Variable 1: -8.79
- e. T Test Score for Independent Variable 2: 3.45
- f. Regression/Impact Coefficient for Independent Variable 1: -1.78
- g. Regression/Impact Coefficient for Independent Variable 2: .47

**Question 6.** Provide whether each of following statements is True or False.

- a. A correlation coefficient of  $-.89$  between Police Resources and Crime Rate would mean that the amount of Police Resources and Crime Rates have a strong tendency to move in opposite directions.
- b. A correlation coefficient of  $-.89$  between Police Resources and Crime Rate would mean that more Police Resources lowers Crime Rates.
- c. In calculating average annual percent change, if the initial year is 1993 and the final year is 2011, one step would to be to raise to  $1/18$  power.
- d. For presenting data on entities (countries, sectors, etc.), a bar chart (bars from vertical axis) is preferred over a column chart (columns from horizontal axis).
- e. If a business goes from a profit position to a loss position, calculating the percent change would be a good way of showing magnitude of the change.
- f. A commonly used measure of pollution is CO<sub>2</sub> emissions per capita. If CO<sub>2</sub> emissions are in million tons, the units of the CO<sub>2</sub> emissions per capita measure would be tons per person.
- g. If a regression of Current Account Balance, in \$ billions, as dependent variable and GDP, in \$ billions, and oil prices, in \$ per barrel, yields an impact coefficient of  $-3.45$  for GDP and  $.56$  for oil prices, we can immediately judge that oil GDP is more important than oil prices in the current account balance.

**Question 7.** A client is interested in possible causes of cross-country differences in GDP growth rates and in estimates of quantitative impacts of those causes on GDP growth rates.

- a. Provide 2 possible causes of the differences
- b. Provide simple calculation that would indicate possible connections between causes and infant mortality
- c. Provide more sophisticated calculation that would provide estimates of the sizes of the connections/ impacts between causes and infant mortality
- d. Provide what would be needed to carry out the calculations

**Question 8.** For the article you were assigned for December 6 class, provide:

- a. The title of your assigned article
- b. Two (2) techniques (calculation, chart, or table) the article used to reach/support its conclusions.