

Suggested Solutions to Assignment 1

PART A

Multiple-Choice Questions

[30 marks]

To answer each question correctly, you have to choose the best answer from the given four choices.

1. A
2. C
3. C
4. C
5. C
6. B
7. B
8. B
9. C
10. B
11. C
12. E
13. A
14. B
15. B
16. D
17. B
18. B
19. B
20. B

Part B**True/ False/ Uncertain Questions****[20 marks]**

Each question is worth 5 marks.

Explain why the following statement is True, False, or Uncertain according to economic principles. Use diagrams and / or numerical examples where appropriate. Unsupported answers will receive no marks. It is the explanation that is important.

1. Exports are subtracted from imports in calculating Canadian GDP because exports are not available for domestic consumption.

False.

In the expenditure method, imports are subtracted in calculating GDP because imports are not produced within the national boundary of Canada. On the other hand, exports should be included in GDP because exports are produced within Canada. In the expenditure approach, GDP is calculated as follows:

$$\text{GDP} = C + I_g + G + (X - M)$$

where, C= Personal Consumption Expenditure

I_g = Gross Investment

G = Government current purchases of goods and services

X = Exports

M = Imports

2. Gross private domestic investment exceeds depreciation in an economy experiencing expanding production capacity.

True.

When in a particular year gross private domestic investment exceeds depreciation in an economy, the net investment on that year is positive. Because,

$$\text{Net Investment} = \text{Gross Investment} - \text{Depreciation} . \quad (1)$$

And a positive net investment implies that the economy is making a net addition to its existing capital stock. So, other things equal, the economy's production capacity expands. We can clearly see this from the evolution equation of the capital stock (K) of an economy given below,

$$\text{Next Year's K} = \text{Current Year's K} + \text{Gross Investment} - \text{Depreciation}. \quad (2)$$

The relationship (2) shows that if (Gross Investment – Depreciation) is positive, the next year's K should be greater than current year's K. It implies a higher production capacity for the economy.

3. Unanticipated inflation benefits creditors and savers.

False.

Unanticipated inflation hurts both creditors and savers.

Unanticipated inflation hurts savers. As prices rise, the real value, or purchasing power, of an accumulation of savings deteriorates. Paper assets such as savings accounts, insurance policies, and annuities that were once adequate to meet emergency financial needs decline in real value during inflationary periods. For example, a household may save \$1000 in a guaranteed certificate (GIC) in a chartered bank at 6 percent annual interest. But if inflation is 13 percent, the real value or purchasing power of the \$1000 will be cut to about \$998 by the end of the year. Although the saver will receive \$1060 (equal to \$1000 plus \$60 of interest), deflating that \$1060 for 13 percent inflation means that its real value is only about \$938 ($= \$1060 \div 1.13$).

Unanticipated inflation harms creditors (lenders). Suppose Manitoba Bank (creditor) lends Bob \$1000, to be paid in two years. If in that time the price level doubles, the \$1000 that Bob repays will have only half the purchasing power of the \$1000 he borrowed. Because of inflation, each of those dollars will only buy half as much as it did when the loan was negotiated. As prices go up, the value of the dollar goes down. Thus, the borrower is lent “dear” dollars but, because of inflation, pays back “cheap” dollars. The owners of Manitoba Bank suffer a loss of real income.

4. If the price level doubles in a 23-year period, we can conclude that the average annual rate of inflation over that period was about 3 percent.

True.

The mathematical approximation called the rule of 70 tells us that we can find the number of years it will take for some measures to double, given its annual percentage increase, by dividing that percentage increase into the number 70. In case of the price level it means,

The number of years to double the price-level = $70 \div$ The annual rate of inflation

or, The annual rate of inflation = $70 \div$ The number of years to double the price-level

or, The annual rate of inflation = $70 \div 23$
= 3.04 %

So, if the price level doubles in a 23-year period, following the rule of 70 we can conclude that the average annual rate of inflation over that period was about 3 percent.

Part C

C-1

(Note: There is an error in the question. The personal consumption expenditures should be \$128, not \$120.)

Using the expenditure method, we can calculate the GDP in the following way:

$$\begin{aligned}\text{GDP} &= C + I_g + G + X_n \\ &= C + (\text{Net investment} + \text{Depreciation}) + G + X_n \\ &= 128 + (30 + 20) + 40 + 5 \\ &= \$223\end{aligned}$$

Using the income method, we can calculate the GDP in the following way:

$$\begin{aligned}\text{GDP} &= \text{Wages, salaries, and supplementary labour income} \\ &+ \text{Profits of corporations and government enterprises before taxes} \\ &+ \text{Interest and investment income} \\ &+ \text{Net income of farm and unincorporated businesses} \\ &+ \text{Taxes less subsidies on factors of production} \\ &+ \text{Indirect taxes less subsidies} \\ &= 113 + 42 + 10 + 17 + 10 + 11 + 20 \\ &= \$223\end{aligned}$$

C-2

(Note: There is an error in the question. The net investments from non-residents should be -\$2.2, not \$2.2.)

$$\begin{aligned}\text{(a) GDP} &= C + I_g + G + X_n \\ &= C + (\text{Net investment} + \text{Depreciation}) + G + (\text{Exports} - \text{Imports}) \\ &= 219.1 + (52.1 + 11.8) + 59.4 + (17.8 - 16.5) \\ &= \$343.7\end{aligned}$$

$$\begin{aligned}\text{(b) GNP} &= \text{GDP} + \text{Net investment from non-residents} \\ &= 343.7 + (-2.2) \\ &= 341.7\end{aligned}$$

$$\begin{aligned}\text{(c) NDP} &= \text{GNP} - \text{Depreciation} \\ &= 341.7 - 11.8 \\ &= 329.7\end{aligned}$$

- (d) NNI = NDP – Indirect business taxes less subsidies
= 329.7 – 14.4
= 315.3
- (e) PI = NNI – Undistributed corporate profits + Government transfer payments
= 315.3 – 10 + 13.9
= 319.2
- (f) DI = PI – Personal taxes
= 319.2 – 40.5
= 278.7

C-3

(Note: There is an error in the question. In the question it is mentioned, “ If the nominal GDP is \$500 billion....”. It should be, “ If the real GDP is \$500 billion....”.)

In a particular year the actual rate of unemployment is 4 percent (= 9 - 5) above the natural rate of unemployment (NRU). So, using the Okun’s law we can tell that the actual GDP is below the potential GDP by the 8 percent (= 4* 2) of the potential GDP. In other words, the GDP gap is negative and it is -8% of the potential GDP.

We know that,

$$\begin{aligned} \text{GDP gap} &= \text{Actual GDP} - \text{Potential GDP} \\ \text{or, } -8\% \text{ of the Potential GDP} &= 500 - \text{Potential GDP} \\ \text{or, } (-0.08 * \text{Potential GDP}) &= 500 - \text{Potential GDP} \\ \text{or, } (1 - 0.08) * \text{Potential GDP} &= 500 \\ \text{or, } 0.92 * \text{Potential GDP} &= 500 \\ \text{or, } \text{Potential GDP} &= 500 \div 0.92 \\ \text{or, } \text{Potential GDP} &= 543.47 \end{aligned}$$

$$\begin{aligned} \text{So, GDP gap} &= \text{Actual GDP} - \text{Potential GDP} \\ &= 500 - 543.47 \\ &= -43.47 \end{aligned}$$

That means the foregone output in that year is \$43.47 billion in real terms.