Answers sheet

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1. 1.1 stock
   1.2 flow
   1.3 stock
   1.4 flow
   1.5 flow
   1.6 flow
   1.7 stock
   1.8 stock
   1.9 stock
   1.10 flow

2. GDP is from "Gross Domestic Product". It's the value of output produced by factors of production located within a country, regardless of nation. On the other hand, GNP is from "Gross National Product" which is the total market value of all final goods and services produced by factors of production owned by a country's citizens, regardless of where the output is produced. When looking at the US and China, I expect China to have higher GNP than US because China has more population than US.

3.

Stages of Production	Value of Sales	Value Added
Growing Apple	12	12 +
Pickling	15	3 +
Canning	18	3 +
Shipping	20	2 +
Retail Sale	22 final sales	2 =

GDP value of the canned apple = 22 units

4. Transfer Payment is cash payment made by the government to people who do not supply goods, services, or labor in exchange for these payment, and the reason that Transfer Payment doesn't included in GDP is because it doesn't produce new goods or services but it's just a moving of money from one person to the other person, or we can say that there's no new output.

5. Real GDP gives us more correct situation of real output and helps us to see inflation or deflation rate in the period that we're interested in. For example, if in 2011 the price of bananas is 10 baht and people buy it for 15 pieces. But in 2013 the bananas' price is increased to 15 baht, and people buy it for 10 pieces. If we calculate the nominal GDP of bananas in 2013, we will get $15 \times 10 = 150$, but if we calculate the real GDP of bananas in 2013 which use 2011 to be a base year, we will get $10 \times 10 = 100$. You will see that the nominal GDP in 2013 is more than the real GDP in 2013, so we can say that there's inflation in 2011 - 2013. However, there still has problem associated with real GDP which is the fixed weights. The fixed weights such as the base year has to be updated due to the economic structure changes.

6. In base year, Nominal GDP = real GDP and GDP deflator will equal to 100. Therefore, nominal GDP in 2018 = real GDP in 2018, and GDP deflator in 2018 = 100 because 2018 is the base year.

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7. First, GDP can not reflect an inequality in our society. Second, GDP also can't count the unreport output in some hidden part of our society such as an illegal activities. Third, GDP doesn't reflect composition of out put e.g. In North Korea, large component of GDP is military products.

8. In 2018, Kingdom Asgard made the following transactions. Using the expenditure approach, identify which component of GDP is affected by each transaction, and calculate the 2018 GDP.

- The citizens bought 8 new cars, each worth 50$. consumption (spending on consumer goods)
- The citizens bought 4 new houses, each worth 150$. investment in new resident
- The citizens grew rice for their own consumption. The rice was worth 500$. Not included in GDP because it doesn't enter the circular flow.
- The firms bought 6 used machines, each worth 50$. Not included in GDP because the machines are second-handed.
- The firms bought 8 car parts, each worth 25$. Not included in GDP because car parts are intermediate goods.
- The government bought 4 new computers, each worth 50$. Government Spending
- The government paid 1000$ to the poor as welfare payment. Not included because transfer payment doesn't create new outputs, unless it's spended by people.
- The citizens bought 10 imported ships, each worth 100$. Not included, GDP messures only country's domestic activities.
- The firms sold 4 planes abroad, each worth 200$. or we can say that included in net exports as imports.

↳ net exports as exports.

↳ 2018 GDP = 50 + 150 + 50 + 200 = 450 $ or if include import → 2018 GDP = 50 + 150 + 50 + (200 - 100)
= 250 + 100
= 350 $ #

9. Suppose that there are three goods in the economy – goods A, B, and C. Calculate Nominal GDP, Real GDP, and GDP Deflator when 2012 is the base year. Also, calculate the annual inflation rate from 2014 to 2015.

Year	Price of A	Quantity of A	Price of B	Quantity of B	Price of C	Quantity of C
2012	1	3	2	3	3	3
2013	3	1 1	4	2 4	1	4 12
2014	2	2 2	3	4 8	2	1 3
2015	4	4 4	1	1 2	4	2 6

base year : 2012

Year	Nominal GDP =	Real GDP	GDP Deflator
2012	3 + 6 + 9 = 18 ⟷ =	18	$\frac{18}{18} \times 100 = 100$
2013	3 + 8 + 4 = 15	1 + 4 + 12 = 17	$\frac{15}{17} \times 100 = 88.2$
2014	4 + 12 + 2 = 18	2 + 8 + 3 = 13	$\frac{18}{13} \times 100 = 138.5$
2015	16 + 1 + 8 = 25	4 + 2 + 6 = 12	$\frac{25}{12} \times 100 = 208.3$

↳ inflation rate : $\frac{208.3 - 138.5}{138.5} \times 100 = 50.4\%$ #

10. Using the table below, calculate GNP (Gross National Product) and NNP (Net National Product : NI (National Income)).

	Billions of Dollars
GDP	8000
Receipts of factor income from the rest of the world	250
Payments of factor income to the rest of the world	300
Depreciation	900
Indirect taxes minus subsidies	500
Corporate profits minus dividends	500
Social insurance payments	700
Personal interest income received from the government and consumers	300
Transfer payments to persons	1100
Personal taxes	1000

GNP : GDP + NFFI (Net Foreign Factor Income)
GNP = 8000 + (250 - 300)
GNP = 7950 Billions of Dollars #
NNP = GNP - depreciation
NNP = 7950 - 900
NNP = 7050 Billions of Dollars #

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11. Using the table below, Calculate the following items.

11.1 Gross domestic investment = Net domestic investment + Depreciation = 784 + 168 = 952 #

11.2 GDP, using the expenditure approach : C + I + G + X - M = 2,203.2 + 952 + 716.8 + 212.8 - 235.2 = 3849.6 #

11.3 GNP : GDP + NFFI : 3849.6 + 35.2 - 68.8 = 3816 #

11.4 NNP : GNP - depreciation : 3816 - 168 = 3648 #

11.3 National Income, using the income approach : Wage + Rent + Corporate Profit + Non-Corporate Profit + Interest + (indirect tax - subsidy)

= 1407.7 + 34.1 + 257.6 + 173.9 + 182.2 + 593.6 - 44.8

= 2604.3 #

Table 6.5

Depreciation	168.0
Compensation of employees	1,407.7
Corporate profits	257.6
Dividends	78.4
Exports	212.8
Government purchases	716.8
Imports	235.2
Indirect taxes	593.6
Net interest income	182.2
Net private domestic investment	784.0
Personal consumption expenditures	2,203.2
Personal interest income	112.0
Receipts of factor income from the rest of the world	35.2
Personal taxes	627.2
Proprietor's income	173.9
Payments of factor income to the rest of the world	68.8
Rental income	34.1
Social insurance payments	380.8
Subsidies	44.8
Transfer payments	504.0

=entrepreneur

12. In a simple economy, suppose that all income is either compensation of employees or profits. Suppose also that there are no indirect taxes. Calculate GDP from the table below. Show that the expenditure approach and the income approach add up to the same figure.

(Hints: (1) NNP + Depreciation = GNP, (2) NFFI = 0, and (3) NI = NNP)

Consumption	9500
Investment	3000
Depreciation	1750
Profits	2400
Exports	850
Compensation of employees	11500
Government purchases	3200
Direct taxes	1200
Saving	1600
Imports	900

expenditure approach → GDP : C + I + G + X - M = 9,500 + 3,000 + 3,200 + 850 - 900

= 15,650 #

income approach → NI = 11500 + 2400 = 13900 = NNP

GNP = NNP + Depreciation

GNP = 13900 + 1750

GNP = 15,650

GNP = GDP + NFFI

GDP = GNP - NFFI

GDP = 15,650 - 0

GDP = 15,650 #