Exercise 2
National Output and National Income

1. Is the following a stock or flow variable?

2.1 Inventories Stock
2.2 Change in Inventories Flow
2.3 Money Supply stock
2.4 Change in Money Flow
Supply
2.5 National Income Flow
2.6 Expenditure Flow
2.7 Wealth stock
2.8 Population stock
2.9 Capital stock
2.10 Interest Flow

2. What is the difference between GDP and GNP? When looking at the US and China, which country do you expect to have higher GNP? Why?

US would have higher GNP this is because the wage of labour in China is cheaper than in US. USA will produce in China

3. The canned apple has 5 stages of production as follows. Find the value added of each stage and the GDP value of the canned apple.

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

Total value added: 3+3+2+2 = 10

final gdp - 22 usd

4. What is Transfer Payment? Why is it not included in GDP?

Transfer payment is one way payment which has no economics activity as no goods/services being purchased. So it isn't include in GDP

5. Why are we interested in Real GDP? Explain with examples. Is there a problem associated with Real GDP?

Real GDP has eliminate the inflation/deflation rate. GDP can't be use to measure the quality of standard living of the citizen

6. Suppose 2018 is the base year. What can we say about Real GDP, Nominal GDP, and GDP Deflator of 2018?

real gdp is equal to nominal gdp and the GDP deflator is 100

7. Explain three limitations of the GDP concept.

① Externalities: GDP doesn't take benefit and cost on the third party in to account
e.g pollution, traffic and environmentay

② hidden economy: unreported income generated e.g. taxi driver/street food stall

③ income distribution: not everyone in an economy is receiving same amount of income contributed to the economy.

7400 400+600+200+(800−1000)·1000

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$. $400 (Consumption)
- The citizens bought 4 new houses, each worth 150$. $600 (investment)
- The citizens grew rice for their own consumption. The rice was worth 500$. Investment but not in GDP
- The firms bought 6 used machines, each worth 50$. $300 (Investment)
- The firms bought 8 car parts, each worth 25$. $200
- The government bought 4 new computers, each worth 50$. $200 (G)
- The government paid 1000$ to the poor as welfare payment. Transfer payment (doesn't count)
- The citizens bought 10 imported ships, each worth 100$. $1000 (import)
- The firms sold 4 planes abroad, each worth 200$. $800 (Export)

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	3	2	3	6	3	3	9
2013	3	1	3	4	2	8	1	4	4
2014	2	2	4	3	4	12	2	1	3
2015	4	4	16	1	1	1	4	2	8

GDP deflator = $\frac{\text{Nominal GDP}}{\text{Real gdp}} \times 100$

inflation rate from 2014 − 2015

$= \frac{\text{new} - \text{old}}{\text{old}}$

$= \frac{25 - 18}{18} = 0.389$

Year	Nominal GDP	Real GDP	GDP Deflator
2012	18	18	100
2013	15	1+4+12=17	88.24
2014	18	2+8+3=13	138.46
2015	25	4+2+6=12	208.33

10. Using the table below, calculate GNP and NNP.

	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

= GDP + from abroad − to abroad

= 8000 + (250 − 300)

= 8000 − 50

= 7950

NNP = GNP − Depreciation = 7950 − 900

= 7050

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

11.1 Gross domestic investment

11.2 GDP, using the expenditure approach

11.3 GNP

11.4 NNP

11.3 National Income, using the income approach

(Do not worry if NNP and NI differ greatly.)

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

1) GDI = NDI + Depreciation

= 784 + 168 = 952

2) C+I+G+(X-M)

= 2203 + 952 + 716.8 + (212.8 - 235.2) = 1000

3) GNP = GDP + NFFI

= 3186 - 168 = 3648

4) NNP = GND - depreciation

3648 - 168 = 3480

5) 1407.07 + 257.6 + 593.6 + 182.2 + 173.4 + 34.1 + 44.8 = 2604

12. In a simple economy, suppose that <u>all income is either compensation of employees or profits</u>. 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)

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

Expenditure Approach

GDP = C+I+G+(X-M)

= 9500 + 3000 + 3200 + (850 - 900)

= 15,650

Income Approach

NI = NNP

GNP = NNP + Depreciation

GNP = GDP when NFFI

GDP - depreciation = profit + compensation

GDP = 2400 + 11500 + 1750

= 15,650