NCERT Solutions for Class 12 Macro Economics

Chapter 2 – National Income Accounting

1.

What are the four factors of production and what are the remunerations to each of these called?

Ans: These are the four factors of production:

1. **Land:** This term refers to natural resources like air, water, soil, and so on. Rent is the money that businesses pay to get these services.

2. **Labor:** This is the mental and physical work that goes into doing a job. For instance, an engineer, a manager, a worker, and so on. Wage is the money given to a worker in exchange for their services.

3. **Capital:** This term refers to money that is invested, as well as physical and tangible things like machinery, structures, technology, tools, and so on that help with the production process. The sum received in return of these services is termed interest.

4. **Entrepreneur:** This term refers to the person who takes the risk to set up the production process. Entrepreneurs take risks and come up with new ways to do things. They are paid for being entrepreneurs.

The remunerations made to the factors of productions are called factor payments or factor incomes. Rent, salary, interest, and profit all add up to these.

2.

Why should the aggregate final expenditure of an economy be equal to the aggregate factor payments? Explain.

Ans: The aggregate final spending of an economy is the total amount of money spent in the economy. In economics, factor payment is the wage, interest, rent, and other payments made to pay for the factors of production. People either save or spend the money they make. But you can regard all of your savings as money you can spend in the future. So, the total amount of money an economy spends should be the same as the total amount of money it pays for factors.

3.

Distinguish between stock and flow. Between net investment and capital which is a stock and which is a flow? Compare net investment and capital with flow of water into a tank.

Ans:

Stock	Flow
The variables that are measured at a part icular point of time. For example, bank balance as on 1st Oct 2010 is Rs.5000.	The variables that are measured over an interval of time. For example, interest earned on bank deposit s for 1 year, i.e. from 1 Oct-2009 to 30 Sep 2010.
It has no time dimensions.	It has time dimensions, like 1 year, 6 months, 10 days, etc.
Examples: Capital, bank deposits, water in a tank.	Examples: Capital formation, interest on capital, water flowing in a stream.

The volume or level of water in a tank might be considered an example of stock. It is possible to measure how much water is in a tank at any given time. In the same way, since capital may be measured at any time, it is likewise a stock variable. Now, if water is dripping from a tank via a tap, the water level will fluctuate over time. An illustration of a flow variable would be the variation in water level over time. Likewise, net investment provides the variation in the amount of investment across time.

4.

What is the difference between planned and unplanned inventory accumulation? Write down the relation between change in inventories and value added of a firm.

Ans: Planned inventory accumulation refers to the strategic approach to building up inventories and stocks. Companies frequently encounter an increase in their inventories due to anticipated declines in sales or projected decreases in consumer demand. Unplanned inventory accumulation occurs when inventories and stocks build up as a result of an unforeseen decline in sales and demand.

5.

Write down the three identities of calculating the GDP of a country by the three methods. Also briefly explain why each of these should give us the same value of GDP.

Ans: One can find a country's GDP using one of three ways:

(a) Income Method:

GDP = Total Payments made to the factors of production

$$GDP = \sum_{i=1}^{M} W_i + \sum_{i=1}^{M} P_i + \sum_{i=1}^{M} I_i + \sum_{i=1}^{M} R_i - (1)$$

represent total wages and salaries received by the i-th household.
represent total profit received by the i-th household.
represent total income received by the i-th household.
represent total rent received by the i-th household.

Equation (1) can be simplified as
GDP = W + R + In + P

(b) Value Added or Product Method:

GDP $\equiv$ Sum of gross value added by all firms in an economy or GDPGVA$_1$ + GVA$_2$ + $\cdots$ GVA$_n$

Where,

GVA$_1$ represents gross value added by the 1st firm
GVA$_2$ represents gross value added by the 2nd firm and so on

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GVA$_n$ represents gross value added by the nth firm Therefore,

$$GDP = \sum_{i=1}^{n} GVA_i$$

(c) Expenditure method or final consumption method:

GDP $\equiv$ Sum total of revenues that firms earn

Or

GDP $\equiv$ Total consumption + Investment + Government Consumption expenditure + Net exports

$$\sum_{i=1}^{N} C_i + \sum_{i=1}^{N} I_i + \sum_{i=1}^{N} G_i + \sum_{i=1}^{N} X_i$$

Imports, which are represented by C_M, make up a percentage of consumer expenditure since households spend a portion of their income on them. In a similar vein, a portion of government consumption and investment expenditures go toward imports and foreign investment goods. The symbols I_M and G_M stand for government consumption spending and investment, respectively. As a result, C stands for consumption, I for investment, and G for government spending on domestic businesses.

Substituting these values in the above equation

$$GDP = C - C_M + I - I_M + G - G_M + \sum_{i=1}^{M} X_i$$

$$C + I + G + \sum_{i=1}^{M} X_i - (C_M + I_M + G_M)$$

$$C + I + G + X - M$$

The three methodologies yield identical outcomes for GDP measurement, as all production in the economy is either consumed or invested. The three strategies illustrate the same economic scenario from three distinct perspectives. The product approach illustrates total production or value added, the income method reflects the income generated by all factors, and the expenditure method details the expenditures made by all factors. In the economy, the producer utilizes four components of production to generate final items and derives money from sales, corresponding to the total value added by the firm. The companies compensate the factors, which serve as the income for all the elements. These compensations correspond to the contributions of the elements to value addition. The factor incomes are subsequently allocated to products and services, so confirming the equivalence between factor income and expenditure. Consequently, the three approaches will consistently yield identical GDP values.

6.

Define budget deficit and trade deficit. The excess of private investment over saving of a country in a particular year was Rs 2,000 crores. The amount of budget deficit was (–) Rs 1,500 crores. What was the volume of trade deficit of that country?

Ans:

Budget Deficit

A budget deficit is referred to a situation when the expenditure by the government exceeds its income.

Budget Deficit is mathematically represented as G – T

Where,

G is the expenditure by the government

T is the income earned by the government

Trade Deficit

When a country spends more on imports than on earning revenue through exports, such a situation is referred to as a trade deficit

Trade Deficit is represented as M − X

Where,

M expenditure on imports

X revenue earned from exports

As per the question

I − S = Rs.2000 crores.

Budget Deficit

G − T = (−) Rs.1500 crores.

Therefore, the trade deficit can be calculated as

Trade deficit = [I − S] + [G − T]

= 2000 + [−1500]

= Rs.500 crores.

7.

Suppose the GDP at market price of a country in a particular year was Rs 1,100 crores. Net Factor Income from Abroad was Rs 100 crores. The value of Indirect taxes – Subsidies was Rs 150 crores and National Income was Rs 850 crores. Calculate the aggregate value of depreciation.

Ans:

National Income (NNP_{FC}) = Rs.850 crores
GDP_{MP} = Rs.1100 crores
Net factor income from abroad = Rs.100 crores
Net indirect taxes = Rs.150 crores
NNP_{FC} = GDP_{MP} + Net factor income from abroad - Depreciation - Net indirect taxes Putting these values in the formula,
850 = 1100 + 100 - Depreciation - 150
⇒ 850 = 1100 - 50 - Depreciation
⇒ 850 = 1050 - Depreciation
⇒ Depreciation = 1050 - 850 = Rs.200 crores
So, depreciation is Rs.200 crores.

8.

Net National Product at Factor Cost of a particular country in a year is Rs 1,900 crores. There are no interest payments made by the households to the firms/government, or by the firms/government to the households. The Personal Disposable Income of the households is Rs 1,200 crores. The personal income taxes paid by them is Rs 600 crores and the value of retained earnings of the firms and government is valued at Rs 200 crores. What is the value of transfer payments made by the government and firms to the households?

Ans:

NNP_{FC} = Rs.1900 crores
PDI = Rs.1200 crores
Personal income tax = Rs.600 crores
Value of retained earnings = Rs.200 crores
PDI = NNP_{FC} - Value of retained earnings of firms and government + value of transfer payments - personal tax
⇒ 1200 = 1900 - 200 + Value of transfer payments - 600
⇒ 1200 = 1100 + Value of transfer payments
⇒ Value of transfer payment = 1200 - 1100 = Rs 100 crores

9.

From the following data, calculate Personal Income and Personal Disposable Income.

	Rs (crore)
(a) Net Domestic Product at factor cost	8,000
(b) Net Factor Income from abroad	200
(c) Undisbursed Profit	1,000
(d) Corporate Tax	500
(e) Interest Received by Households	1,500
(f) Interest Paid by Households	1,200
(g) Transfer Income	300
(h) Personal Tax	500

Ans:

Personal Income = NDP$_{FC}$ + Net factor income from abroad (NFIA) + Transfer Income - Undistributed profit - corporate tax - Net interest paid by households

NDP$_{FC}$ = Rs.8000 crores

NFIA = Rs.200 crores

Transfer Income = Rs.300 crores

Undistributed profit = Rs.1,000 crores

Corporate tax = Rs.500 crores

Net interest paid by households = Interest paid - Interest received

= 1200 - 1500

= (-) Rs.300 crores

So, putting the values in the above formula

PI = 8000 + 200 + 300 - 1000 - 500 - (- 300)

= 8000 + 200 + 300 - 1000 - 500 + 300

⇒ PI = 7300 So, Personal Income = Rs.7300 crores

Personal Disposable income = Personal Income - Personal Payments

= 7300 - 500

= Rs.6800 crores

10.

In a single day Raju, the barber, collects Rs 500 from haircuts; over this day, his equipment depreciates in value by Rs 50. Of the remaining Rs 450, Raju pays sales tax worth Rs 30, takes home Rs 200 and retains Rs 220 for improvement and buying of new equipment. He further pays Rs 20 as income tax from his income. Based on this information, complete Raju's contribution to the following measures of income (a) Gross Domestic Product (b) NNP at market price (c) NNP at factor cost (d) Personal income (e) Personal disposable income.

Ans:

(i) GDP$_{MP}$ = Rs.500 [Barber collects from haircut]

(ii) NNP$_{MP}$ = GDP - Depreciation

= 500 - 50

= Rs.450

(iii) NNP$_{FC}$ = NNP - Sales tax

= 450 - 30

= Rs.420

(iv) PI = NNP$_{FC}$ - Retained earnings

= 420 - 220

= Rs.200

(v) PDI = PI - Income tax

= 200 - 20

= Rs.180

11.

The value of the nominal GNP of an economy was Rs 2,500 crores in a particular year. The value of GNP of that country during the same year, evaluated at the prices of same base year, was Rs 3,000 crores. Calculate the value of the GNP deflator of the year in percentage terms. Has the price level risen between the base year and the year under consideration?

Ans:

Nominal GNP = Rs.2500
Real GNP = Rs.3000

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

So,

$$\text{GNP deflator} = \frac{2500}{3000} \times 100$$

= 83.33%

No, the price level has fallen down by 16.67 % [(100 - 83.33)%].

12.

Write down some of the limitations of using GDP as an index of welfare of a country.

Ans: There are some problems with using GDP as a way to judge how well a country is doing. GARP, or Gross Domestic Product, is the sum of all the values of all the things and services made in a country or economy. A country's GDP can give you a good idea of its size, growth, and value. To put it simply, it's a measure of all the economic actions going on in the economy. There is disagreement and no clear evidence about the link between happiness and GDP. This is why GDP is not a good way to figure out how well a country is doing.

i) GDP only tells us how much money a country makes overall. We are not given any information about how the made income is split up among the people. People who are already rich get more benefits from GDP growth than the average person in countries with a high rate of inequality.

ii) GDP doesn't look at how much industry and growth hurt the environment. A plant that pollutes and damages the environment might add to the GDP, but the long-term costs and effects of these things are not taken into account when the GDP is calculated. So, an economy's GDP value doesn't show how well it takes care of the environment.

iii) Spending and buying things don't always mean that people are "well-being." People in a country could spend more and make more money, but other things, like having access to healthcare and education, are more important for their health. GDP doesn't tell us anything about the standard of living or quality of life of the average person.

the well-being of society as a whole is affected by many social and economic issues, such as gender equality, literacy, freedom, and freedom of choice. These aspects of social growth and human development are not taken into account by GDP.