4

METHODS OF CALCULATING NATIONAL INCOME

TO DO

- *Methods of Calculating National Income*
- *Value Added Method (with reference to the Problem of Double Counting)*
- *Income Method (with reference to the Concept of Operating Surplus)*
- *Expenditure Method (with reference to the Classification of Final Expenditure as Consumption Expenditure and Investment Expenditure)*

1. METHODS OF CALCULATING NATIONAL INCOME

Circular Flow Model (chapter 2) reveals that national income can be viewed from three different angles:

(i) as the sum total of value addition in the economy,

(ii) as the sum total of income generated in the economy, and

(iii) as the sum total of expenditure on the final goods and services produced in the economy.

Corresponding to the three different way of looking at national income, the economists have suggested three methods of calculating national income. These are:

(i) Value Added Method, (ii) Income Method, and (iii) Expenditure Method.

Following is a brief description of these methods.

2. VALUE ADDED METHOD (OR PRODUCT METHOD)

Value Added Method measures national income in terms of value addition by each producing enterprise in the economy during an accounting year. This is also known as Industrial Origin Method or Net Output Method. Estimation of the contribution of all producing enterprises to production in the domestic territory of the country during the year is equal to the market value of GDP, called GDP_{MP}. It is adjusted to find out NNP_{FC} or national income.

Value Added

Value added is the difference between value of output of an enterprise and the value of its intermediate consumption.

Value Added = Value of output – Intermediate consumption

Value of Output

It refers to market value of the goods (or services) produced by a firm during an accounting year. If the entire output of the year is sold during the year, value of output = sales.

Value of Output = Sales, if entire output of the year is sold during the year

If some output remains unsold, it is added to the firm's inventory stock. It is expressed as change in stock (Δstock) during the year. In such a situation, value of output is measured as the sum total of 'sales during the year' and 'change in stock during the year'.

Value of Output = Sales + ΔStock, if some output remains unsold during the year

Change in Stock (ΔStock)

It is measured as the difference between 'closing stock of the accounting year' and 'opening stock of the accounting year'.

ΔStock = Closing Stock – Opening Stock

Intermediate Consumption

It refers to value of non-factor inputs (all inputs other than factor inputs of land, labour, capital and entrepreneurship). Primarily, it includes value of raw material used in the process of production.

Illustration

Table 1 illustrates how 'value added' is estimated.

Table 1. **Estimating Value Added (or Value Addition)**

Producing Enterprise	Value of Output (₹)	Cost of Intermediate Goods [Intermediate Consumption] (₹)	Value Added (₹)
1. Farmer	600	200	400
2. Flour Mill	800	600	200
3. Baker	1,000	800	200
4. Shopkeeper	1,200	1,000	200
Total	3,600	2,600	1,000

In Table 1, it is assumed that the production of wheat involves cost of intermediate consumption of ₹ 200 (it may include cost of inputs like seeds, fertilizers, irrigation expenses, etc.). Accordingly, value added by the farmer is equal to ₹ 600 – ₹ 200 = ₹ 400.

- The flour mill buys wheat for ₹ 600 and sells flour for ₹ 800. Value added by the flour mill, therefore, is equal to ₹ 800 – ₹ 600 = ₹ 200.
- Further, the baker buys flour for ₹ 800 and sells the bread for ₹ 1,000 to the shopkeeper. The value added by the baker is ₹ 1,000 – ₹ 800 = ₹ 200.
- The shopkeeper buys the bread for ₹ 1,000 and sells the bread to the households for ₹ 1,200. The value added by the shopkeeper is ₹ 1,200 – ₹ 1,000 = ₹ 200.

Thus, the gross value added by all the producing enterprises is ₹ 400 + ₹ 200 + ₹ 200 + ₹ 200 = ₹ 1,000.

Gross value added by all the producing enterprises within the domestic territory of a country during an accounting year is called GDP_{MP} (gross domestic product at market price).

FOCUS ZONE

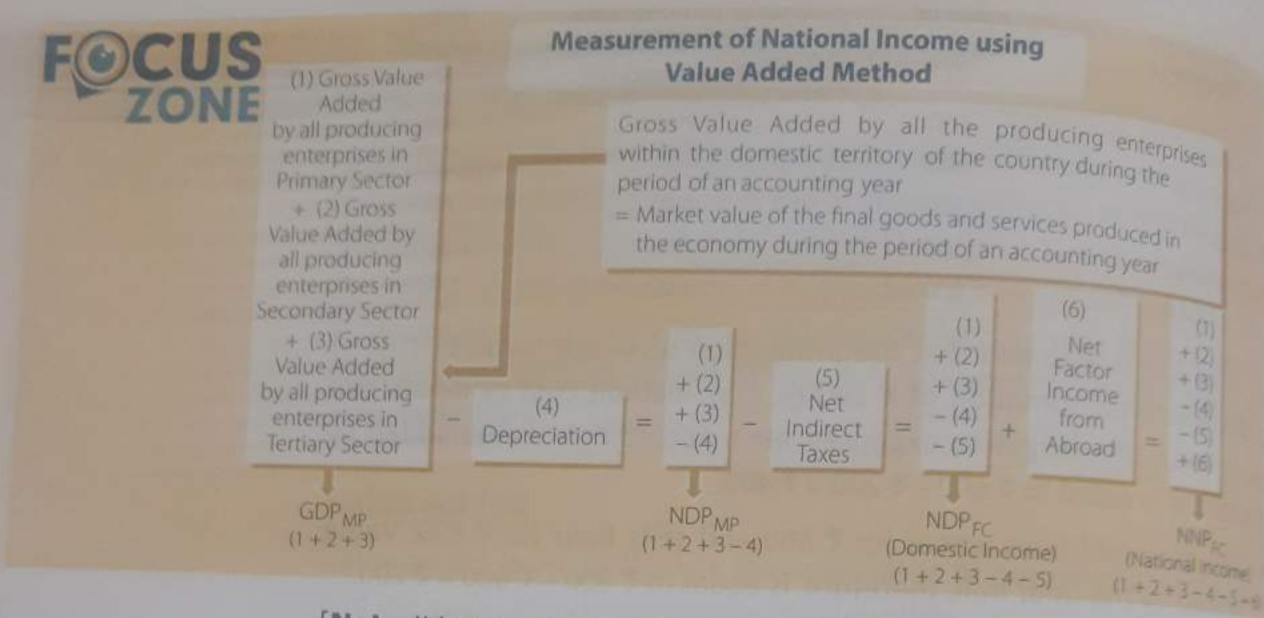
GDP_{MP} = Gross Value Added by all producing enterprises within the domestic territory of a country during the period of one year.
= Market value of final goods and services produced in the economy during the period of one year.

Having estimated GDP_{MP}, we find out NNP_{FC} (national income) in terms of the following equation:

GDP_{MP}
– Depreciation
= NDP_{MP}
– Net indirect taxes
= NDP_{FC}
+ Net factor income from abroad
= NNP_{FC} (National Income)

[As noted earlier, national income is often identified with NNP_{FC}.]

Check the following flow chart for further illustration:



[**Note:** It is a standard practice to classify different producing units as primary, secondary and tertiary sectors of the economy. While primary sector is dominated by agriculture, secondary sector is largely taken as industrial sector, and the tertiary sector includes all types of services (banking, insurance, etc.) connected with 'value addition'.]

A Standard Precaution Relating to the Use of Value Added Method

Value added should not be confused with the value of output. Value of output simply refers to the market value of the goods produced. On the other hand, value added refers to the market value of the goods produced minus market value of the goods used as inputs/raw material in the process of production. Goods used as inputs/raw material are called intermediate goods. Thus,

Value Added

= Value of output – Value of intermediate goods used in production.

Briefly, while value of output includes the value of intermediate goods used in production, value added does not.

Precautions Regarding Value Added Method

Following are some important precautions regarding value added method:

(i) Value of the sale and purchase of second-hand goods is not included in the estimation of 'value added' or GDP. Because, value of second-hand goods is already accounted for during the year they were produced.

(ii) Commission earned on account of the sale and purchase of second-hand goods is included in the estimation of value added. Because, commission is a reward for the services rendered.

(iii) Own account production of goods of the producing units is taken into account while estimating value added. Because, these goods are like those produced for the market. They are simply not sold owing to their need by the producers themselves. **Example:** Cars used by the car producers for transporting their employees.

(iv) Imputed value of production for self-consumption is taken into account. Again because, these goods are like those produced for the market. **Example:** Wheat produced and consumed by the farming families themselves.

(v) Value of intermediate goods is not included in the estimation of value added. Because, value of intermediate goods is reflected in the value of final goods.

(vi) Imputed rent on the owner occupied house is to be taken into account. Because, all houses have rental value, no matter these are self-occupied or rented out.

(vii) Services for self-consumption are not considered while estimating value added. Simply because, it is difficult to estimate their market value, like, for example, services of housewives.

Problem of Double Counting and the Ways to Avoid it

While estimating national income as the market value of final goods produced in the economy, one is likely to encounter the problem of double counting. The problem arises when the value of certain goods is counted more than once. This happens when we fail to draw the distinction between final goods (or final sales) and intermediate goods (or intermediate sales). As far as an individual entrepreneur is concerned, it sells its goods as final goods and treats its sales as final sales. But it is for the students of economics to classify sales of different entrepreneurs as final goods and intermediate goods, depending on their end-use. Let us illustrate this problem with the help of an example.

- Suppose, a farmer produces one tonne of wheat and sells it for ₹ 400 in the market to a flour mill. As far as the farmer is concerned, the sale of wheat is a final sale and he gets ₹ 400 for it. If he does not have to incur any expenditure on the cultivation of wheat, ₹ 400 becomes the value of his contribution to GDP or value added by him.
- The purchase of wheat by the flour mill is an intermediate good. It converts wheat into flour and sells it for ₹ 600 to a baker. The flour mill treats the flour as a final good.
- But the baker uses it as an intermediate good and manufactures bread. The baker sells the bread to the shopkeeper for ₹ 800. For the baker, the bread is a final good.
- But for the shopkeeper, it is an intermediate good. The shopkeeper sells the entire stock of bread to the final consumers for ₹ 900.

In this entire chain of production activity, if we overlook the fact that the output of one producer is used as raw material (or intermediate consumption) by the other, GDP estimation would be grossly over-estimated. We might estimate it as equal to ₹ 400 + ₹ 600 + ₹ 800 + ₹ 900 = ₹ 2,700. But the fact of the matter is that only final goods are to be included in the estimation of GDP. And, in this example, market value of the bread (₹ 900) sold by the shopkeeper to its final users (the consumers) should be included. Implying that GDP = ₹ 900, not ₹ 2,700 as noted above. One should be careful of avoiding such problems of double counting or over-estimation of GDP or national income.

Two Ways to Avoid it

The problem of double counting is avoided in case either of the following two methods is adopted for the estimation of GDP:

(i) Final Output Method, and

(ii) Value Added Method.

(i) **Final Output Method:** According to this method, only final goods and services (in terms of their end-use) are to be considered in the estimation of GDP. Intermediate goods are not to be considered. We know (in terms of their end-use), final goods are those goods which have crossed the boundary line of production and which are ready for use by their final users who may be consumers or producers. Intermediate goods are not to be considered, as these are within the boundary line of production and are yet not ready for use by their final users. In the above example, the bread sold to the consumers is the final good. Only the value of final good (bread in this case), *i.e.*, ₹ 900 will be included in the estimation of GDP.

(ii) **Value Added Method:** According to this method, sum total of value added by all the producing units within the domestic territory of the country is to be considered in the estimation of GDP. Value added refers to the difference between value of output and the value of intermediate consumption of each producing unit in the country. In the above example, value added at each stage of production, *i.e.*, ₹ 400 + ₹ 200 + ₹ 200 + ₹ 100 = ₹ 900 will be included in the estimation of GDP.

EXAMPLES

Example 1.

On the basis of the following data about an economy which consists of only two firms, find out:

(a) Value Added by firm A and B, and

(b) Gross Value Added or Gross Domestic Product at Factor Cost.

Items	**(₹ in lakh)**
(i) Sales by firm A	100
(ii) Purchases from firm B by firm A	40

(iii) Purchases from firm A by firm B	60
(iv) Sales by firm B	200
(v) Closing stock of firm A	20
(vi) Closing stock of firm B	35
(vii) Opening stock of firm A	25
(viii) Opening stock of firm B	45
(ix) Indirect taxes paid by both firms	30

Solution:

(a) Value Added by firm A

= Sales by firm A – Purchases from firm B + Change in stock (Closing stock – Opening stock)

= ₹ 100 lakh – ₹ 40 lakh + (₹ 20 lakh – ₹ 25 lakh)

= ₹ 100 lakh – ₹ 40 lakh – ₹ 5 lakh

= ₹ 55 lakh

Value Added by firm B

= Sales by firm B – Purchases from firm A + Change in stock (Closing stock – Opening stock)

= ₹ 200 lakh – ₹ 60 lakh + (₹ 35 lakh – ₹ 45 lakh)

= ₹ 200 lakh – ₹ 60 lakh – ₹ 10 lakh

= ₹ 130 lakh

Ans. Value Added by firm A = ₹ 55 lakh.

Value Added by firm B = ₹ 130 lakh.

(b) Gross Value Added or Gross Domestic Product at Factor Cost

= Value added by firm A + Value added by firm B – Indirect taxes

= ₹ 55 lakh + ₹ 130 lakh – ₹ 30 lakh

= ₹ 185 lakh – ₹ 30 lakh

= ₹ 155 lakh

Ans. Gross domestic product at factor cost = ₹ 155 lakh.

[**Note:** Value added by firm A and firm B here implies gross value added at market price.]

Example 2.

Calculate:

(a) **Gross Value Added at Market Price, and**

(b) **National Income from the following data.**

Items	**(₹ in lakh)**
(i) Value of output:	
(a) Primary sector	800
(b) Secondary sector	200

(c) Tertiary sector	300
(ii) Value of intermediate inputs purchased by:	
(a) Primary sector	400
(b) Secondary sector	100
(c) Tertiary sector	50
(iii) Indirect taxes paid by all sectors	50
(iv) Consumption of fixed capital of all sectors	80
(v) Factor income received by the residents from rest of the world	10
(vi) Factor income paid to non-residents	20
(vii) Subsidies received by all sectors	20

Solution:

(a) Gross Value Added at Market Price

= Value of output of different sectors – Value of intermediate inputs purchased by different sectors

= ₹ 800 lakh + ₹ 200 lakh + ₹ 300 lakh – ₹ 400 lakh – ₹ 100 lakh – ₹ 50 lakh

= ₹ 750 lakh

Ans. Gross value added at market price = ₹ 750 lakh.

(b) National Income

= Gross domestic product at market price – Consumption of fixed capital – Indirect taxes + Subsidies + Factor income received by the residents from rest of the world – Factor income paid to non-residents

= ₹ 750 lakh – ₹ 80 lakh – ₹ 50 lakh + ₹ 20 lakh + ₹ 10 lakh – ₹ 20 lakh

= ₹ 630 lakh

Ans. National income = ₹ 630 lakh.

3. INCOME METHOD

It is also called Distributed Share Method or Factor Payment Method. According to this method, national income is estimated in terms of factor payments (compensation of employees, rent, interest and profit) to the owners (households) of factors of production (labour, land, capital and enterprise) during an accounting year. Sum total of factor incomes generated within the domestic territory of a country (by the residents or non-residents) is called domestic income. Net factor income from abroad is added to domestic income to find national income.

What are Factor Incomes?

A factor income refers to income earned by a person as a reward for rendering his factor service. It may be in the form of wage/salary for his labour, rent for his land, interest for his capital or profit for his entrepreneurship. It must be noted that factor incomes are only 'earned' incomes. It does not include any income which is 'not earned' or for which a factor service has not been rendered. To illustrate, old-age pension received by the senior citizens is not their earned income. It is just a help by the government without anything in return. Such receipts or payments are called transfer receipts or transfer payments. These are not included in the estimation of national income.

HOTS

Q. **How do you distinguish between old-age pensions and retirement pensions in the context of estimation of national income?**

Ans. Old-age pensions are unilateral payments or transfer payments. These are not included in the estimation of national income. On the other hand, retirement pensions are like a deferred wage. These are related to factor services rendered by the recipients prior to their retirement. Accordingly, these are included in the estimation of national income.

Classification (or Types) of Factor Incomes

Factor incomes are broadly classified as follows:

(1) **Compensation of Employees:** It includes the following components:

(i) **Wages and Salaries in Cash:** It refers to cash paid or transferred to the salary account of the employees by the employers as a reward for the work done during the period of an accounting year.

(ii) **Payments in Kind:** It refers to benefits in kind (like rent-free accommodation) given to the employees by the employers.

(iii) **Employers' Contribution to Social Security:** It refers to such payments as provident fund contributions by the employers on behalf of the employees.

(iv) **Pension on Retirement:** To be specific, it does not refer to old-age pensions. It only refers to pension payments as a part of the 'Service-Contract' between the employer and the employees.

(2) **Operating Surplus:** It refers to income from property and entrepreneurship. It includes the following items:

(a) Rent, (b) Interest, and (c) Profit.

Profit is further split into three components as under:

(i) **Dividends:** That part of the profit which is distributed among the shareholders. It is also called 'distributed profit'.

(ii) **Corporate/Corporation Profit Tax:** That part of the profit which is paid to the government by way of 'profit tax'.

(iii) **Undistributed Profit:** That part of the profit which is retained by the firms for future use, particularly to meet some contingent expenses. It is also called 'corporate saving' or 'undistributed profits'.

(3) **Mixed Income:** Mixed income refers to the incomes of the self-employed persons using their own labour, land, capital and entrepreneurship in their household enterprises. These incomes are a mixture of wages, rent, interest and profit. That is why it is called mixed income. Separate estimation of wages, rent, interest and profit is not possible. Because, factors of production are not hired/purchased from the market.

As noted earlier, sum total of factor incomes generated within the domestic territory of a country is called NDP_{FC} (net domestic product at factor cost) or simply domestic income.

NDP_{FC} = Sum total of factor incomes generated within the domestic territory of a country during an accounting year. It is briefly called domestic income.

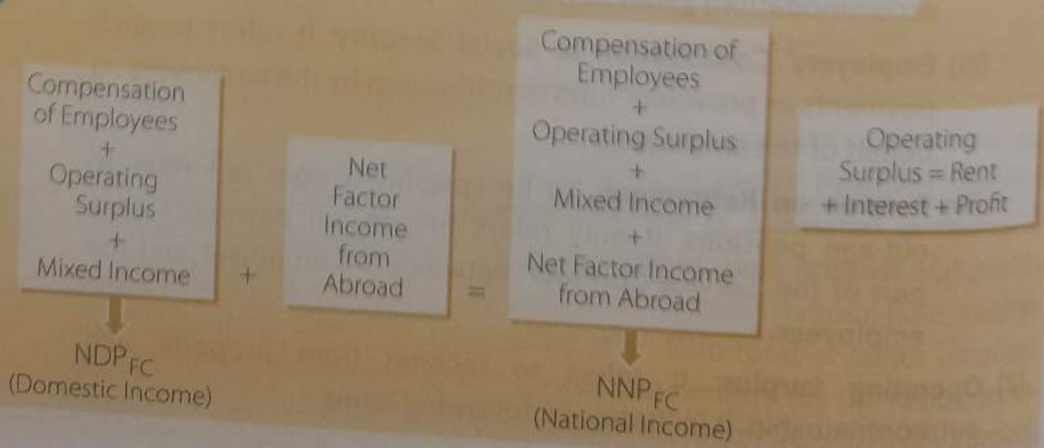
National income (NNP_{FC}) is estimated by adding net factor income from abroad to NDP_{FC}.

$$NNP_{FC} = NDP_{FC} + \text{Net factor income from abroad}$$

Check the following flow chart for further illustration:

FOCUS ZONE

Measurement of National Income using Income Method



HOTS

Q. Operating surplus does not arise in (i) subsistence sector, and (ii) general government sector of the economy. Why?

Ans. Operating surplus does not arise in the subsistence sector and in the general government sector because of the following reasons:

(i) In the subsistence sector, production is meant only for subsistence of the producing families. Production is not meant for sale in the market. There is no marketable surplus. Accordingly, there is no operating surplus.

(ii) **In the general government sector, production is meant only for collective consumption (or consumption by the general public).** Goods and services are produced not for sale in the market, but for general welfare of the people. **Example:** Services of law & order and defence are available to the people free of charge. Accordingly, there is no operating surplus in the 'general government' sector.

Precautions Regarding Income Method

The following precautions are to be taken while using the income method:

(i) Transfer earnings like old-age pensions, unemployment allowances, scholarships, pocket expenses, etc., should not be included in national income. Because, corresponding to transfer payments, there is no value addition in the economy. However, as already noted retirement pensions are to be included in national income, as these are part of compensation of employees.

(ii) Income from illegal activities like, theft and gambling, etc., is not to be included in national income. As regards, income generated in terms of black money, it is not included simply because no estimates are available of such incomes.

(iii) Commissions paid on the sale and purchase of second-hand goods are to be included in national income as these are a reward for rendering factor services.

(iv) Brokerage on the sale/purchase of shares and bonds is to be included in national income. Because this is a reward for factor services.

(v) Income in terms of windfall gains (like from lotteries) should not be included as there is no value addition corresponding to windfall gains. Likewise, income in the form of capital gains is not to be treated as factor income.

(vi) Imputed rent of owner occupied houses is to be treated along with rent as a component of factor incomes.

(vii) Corresponding to production for self-consumption, there should be generation of income in the economy. It should be taken account of.

A Standard Precaution Relating to the Use of Income Method

Income method accounts for only factor incomes corresponding to which there is a flow of goods and services in the economy. It does not account for such incomes corresponding to which there is no flow of goods and services or corresponding to which there is no value addition in the economy.

(viii) Corporate tax, dividends and undistributed profits are all the components of corporate profits. Once profit is included in the estimation of national income, any of these components should not be separately added.

(ix) Income tax is paid out of compensation of employees. It should not be added in the estimation of national income.

(x) Wages and salaries in cash and kind—as well as social security contributions by the employers on behalf of employees are all components of compensation of employees. Any of these components should not be separately added once compensation of employees is included in the estimation of national income.

Note

All taxes by the government are received as compulsory transfer payments. These are not to be included in the estimation of national income.

EXAMPLES

Example 1.

Given the following data and using income method calculate:

(a) Net Domestic Income, (b) Gross Domestic Income, (c) Net National Income, and (d) Net National Product at Market Price.

Items	(₹ in crore)
(i) Indirect taxes	9,000
(ii) Subsidies	1,800
(iii) Depreciation	1,700
(iv) Mixed income of self-employed	28,000
(v) Operating surplus	10,000
(vi) Net factor income from abroad	(–) 300
(vii) Compensation of employees	24,000

Solution:

(a) Net Domestic Income

= Mixed income of self-employed + Operating surplus + Compensation of employees

= ₹ 28,000 crore + ₹ 10,000 crore + ₹ 24,000 crore

= ₹ 62,000 crore.

Ans. Net domestic income = ₹ 62,000 crore.

(b) Gross Domestic Income

= Net domestic income + Depreciation

= ₹ 62,000 crore + ₹ 1,700 crore

= ₹ 63,700 crore

Ans. Gross domestic income = ₹ 63,700 crore.

(c) Net National Income

= Net domestic income + Net factor income from abroad

= ₹ 62,000 crore + (–) ₹ 300 crore

= ₹ 62,000 crore – ₹ 300 crore

= ₹ 61,700 crore

Ans. Net national income = ₹ 61,700 crore.

(d) Net National Product at Market Price

= Net national income + Indirect taxes – Subsidies

= ₹ 61,700 crore + ₹ 9,000 crore – ₹ 1,800 crore

= ₹ 68,900 crore

Ans. Net national product at market price = ₹ 68,900 crore.

Example 2.

The following information is available for an economy. On the basis of this information using income method, calculate: (a) Domestic Income, and (b) National Income.

Items	(₹ in crore)
(i) Wages	10,000
(ii) Rent	5,000
(iii) Interest	400
(iv) Dividend	3,000
(v) Mixed income	400
(vi) Undistributed profit	200
(vii) Social security contribution	400
(viii) Corporate profit tax	400
(ix) Net factor income from abroad	1,000

Solution:

(a) Domestic Income

= Wages + Rent + Interest + Dividend + Mixed income + Undistributed profit + Social security contribution + Corporate profit tax

= ₹ 10,000 crore + ₹ 5,000 crore + ₹ 400 crore + ₹ 3,000 crore + ₹ 400 crore + ₹ 200 crore + ₹ 400 crore + ₹ 400 crore

= ₹ 19,800 crore

Ans. Domestic income = ₹ 19,800 crore.

(b) National Income

= Domestic income + Net factor income from abroad

= ₹ 19,800 crore + ₹ 1,000 crore

= ₹ 20,800 crore

Ans. National income = ₹ 20,800 crore.

4. EXPENDITURE METHOD

According to this method, national income is estimated in terms of expenditure on the purchase of final goods and services produced in the economy during an accounting year. Since final expenditure comprises C (consumption) and I (investment), it is also called Consumption and Investment Method, or Income Disposal Method. Estimation of expenditure on the final goods produced during the year (within the domestic territory of a country) is equal to the market value of GDP, called GDP_{MP}. It is adjusted to find NNP_{FC} or national income.

Classification of Final Expenditure

Final expenditure (as expenditure on the purchase of domestically produced final goods and services during an accounting year) is broadly classified into four categories, *viz.* (i) private final consumption expenditure (C), (ii) government final consumption expenditure (G), (iii) investment expenditure (I), and (iv) net exports (X – M). Details are as under.

(1) Private Final Consumption Expenditure (C)

It refers to expenditure on final goods and services by the individuals, households and non-profit private institutions serving society (like Help-age).

It includes:

(i) consumer services.

(ii) consumer non-durable goods, that is, goods which are not repeatedly used like butter or milk.

(iii) consumer durable goods which are repeatedly used for several years, like furniture and washing machines.

(2) Government Final Consumption Expenditure (G)

It refers to expenditure on final goods and services by the government, like expenditure on the purchase of goods for consumption by the defence personnel.

(3) Investment Expenditure (I)

It refers to expenditure on the purchase of final goods by the producers. These goods are to be further used in the process of production. **Example:** Expenditure by the farmers on the purchase of tractors.

Investment expenditure is further classified as under:

(i) Fixed investment, and (ii) Inventory investment.

(i) **Fixed Investment:** Fixed investment refers to expenditure by the producers on the purchase of fixed assets like plant and machinery. Economists often classify fixed investment as: (a) business fixed investment, (b) fixed investment by the households in terms of construction of houses, and (c) public fixed investment or fixed investment by the government, like expenditure by the government on the construction of roads, dams and bridges.

(ii) **Inventory Investment:** It refers to change in stock during the year. As noted earlier, it is estimated as the difference between 'closing stock of the year' and 'opening stock of the year'.

Did You Know it?

- **Inventory investment** is measured as the difference between 'closing stock of the year' and 'opening stock of the year'. The stock includes:
  (i) Stock of finished goods,
  (ii) Stock of semi-finished goods, and
  (iii) Stock of raw material.
- **Exports are included in GDP** because exports are a part of domestically produced goods and services, or because exports are a part of goods and services produced within the domestic territory of a country.

(4) Net Exports (X – M)

Net exports refer to the difference between exports and imports during an accounting year. Exports are an expenditure by the foreigners on the domestically produced final goods and services, while imports are an expenditure on the goods and services produced abroad. While expenditure on the domestically produced goods and services is added to total expenditure in the economy during an accounting year, expenditure on imports is deducted. This adjustment is essential for a precise estimation of the expenditure on the domestically produced goods and services.

Sum total of expenditure on the domestically produced goods and services during an accounting year is called GDP_{MP} (gross domestic product at market price).

Private final consumption expenditure
+ Government final consumption expenditure
+ Business fixed investment ⎫
+ Government fixed investment ⎬ Gross Domestic Fixed Investment
+ Investment on residential construction by households ⎭
+ Inventory investment (= ΔStock = Closing stock – Opening stock)
+ Net exports (X – M)
= GDP_{MP}

[**Note:** Gross domestic fixed investment is also called gross domestic fixed capital formation as investment implies capital formation or adding to the stock of capital.]

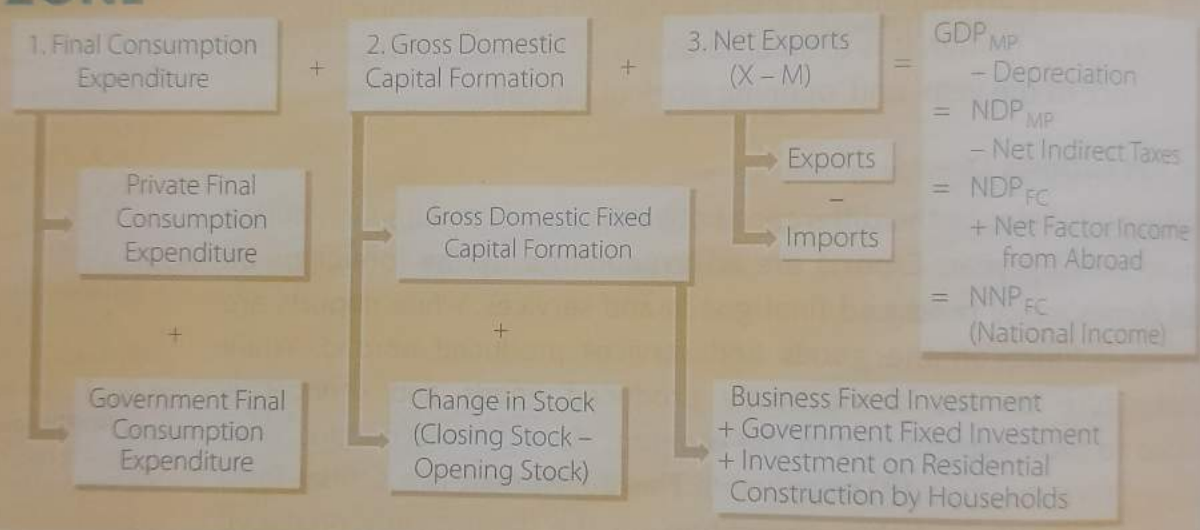
GDP_{MP} is converted into NNP_{FC} (national income) in terms of the following equation:

GDP_{MP}
– Depreciation
$= NDP_{MP}$
– Net indirect taxes
$= NDP_{FC}$ (Domestic Income)
+ Net factor income from abroad
$= NNP_{FC}$ (National Income)

Check the following flow chart for further illustration:

FOCUS ZONE

Measurement of National Income using Expenditure Method



HOTS

Q. What causes increase in inventory stock?

Ans. Increase in inventory stock is caused by two factors:

(i) **Unexpected Fall in Demand in the Current Year: Example:** Producers may have expected demand to the tune of 50,000 umbrellas but, owing to the failure of monsoon, only 10,000 umbrellas are sold during an year. Accordingly, 40,000 umbrellas are added to the existing stock.

(ii) **Expected Rise in Demand in the Near Future:** Producers may expect a spurt (rise) in demand (and therefore, increase in price) in the near future. Accordingly, they pile up stocks during the current year.

Precautions Regarding Expenditure Method

The following precautions are to be taken while using expenditure method:

(i) Only final expenditure is to be taken into account to avoid error of double counting. Final expenditure is to be interpreted as expenditure on final goods and services. Expenditure on intermediate goods and services (referring to intermediate consumption) must be avoided.

(ii) Expenditure on second-hand goods is not to be included. Because, value of second-hand goods has already been accounted during the year of their production (when these were initially produced and purchased by the final users).

(iii) Expenditure on shares and bonds is not to be included in total expenditure, as these are mere paper claims and are not related to the production of final goods and services. Such expenditures do not cause any value addition.

(iv) Expenditure on transfer payments by the government (like, old-age pension, scholarship) is not to be included, because transfer payments do not cause any value addition in the economy.

(v) Imputed value (estimated value) of expenditure on goods produced for self-consumption should be taken into account, as these goods are reflected in the estimation of GDP. Also, imputed rent on owner occupied houses should be taken into account.

Standard Precaution Relating to the Use of Expenditure Method

Final expenditure is to be interpreted as expenditure on the purchase of final goods and services produced within the domestic territory of the country. Expenditure on the intermediate goods and services is not to be taken into account.

EXAMPLES

Example 1.

From the following data, calculate the GDP at both (a) market price, and (b) factor cost.

Items	(₹ in crore)
(i) Gross investment	90
(ii) Net exports	10
(iii) Net indirect taxes	5
(iv) Depreciation	15
(v) Net factor income from abroad	(–) 5
(vi) Private consumption expenditure	350
(vii) Government purchases of goods and services	100

Solution:

(a) GDP_{MP} = Gross investment + Net exports + Private consumption expenditure + Government purchases of goods and services

= ₹ 90 crore + ₹ 10 crore + ₹ 350 crore + ₹ 100 crore

= ₹ 550 crore

Ans. GDP_{MP} = ₹ 550 crore.

(b) $GDP_{FC} = GDP_{MP}$ – Net indirect taxes

= ₹ 550 crore – ₹ 5 crore = ₹ 545 crore

Ans. GDP_{FC} = ₹ 545 crore.

Example 2.

Find NDP_{FC} from the following data.

Items	(₹ in crore)
(i) Gross domestic fixed investment	10,000
(ii) Inventory investment	5,000
(iii) Depreciation	2,000
(iv) Indirect taxes	1,000
(v) Subsidies	2,000
(vi) Consumption expenditure	20,000
(vii) Residential construction investment	6,000

Solution:

GDP_{MP} = Gross domestic fixed investment + Inventory investment + Consumption expenditure

= ₹ 10,000 crore + ₹ 5,000 crore + ₹ 20,000 crore

= ₹ 35,000 crore

NDP_{FC} = GDP_{MP} – Depreciation – Indirect taxes + Subsidies

= ₹ 35,000 crore – ₹ 2,000 crore – ₹ 1,000 crore + ₹ 2,000 crore

= ₹ 34,000 crore

Ans. NDP_{FC} = ₹ 34,000 crore.

HOTS

Q. 1. Export receipts are not a part of net factor income from abroad. Why?

Ans. This is because of two reasons:

(i) Exports refer to the purchase of domestically produced goods by the rest of the world. Goods produced within the domestic territory of a country are to be treated as a part of GDP.

(ii) Export receipts refer to revenue of the firms from the sale of its output. These are not the receipts of factor incomes from abroad which are available in the form of rent, interest, profit and wages.

Q. 2. Exports are just sales yielding revenue, not income. Comment.

Ans. It is true that exports are just sales and yield revenue, not income. Exports are just sales because these are purchases of rest of the world from the domestic economy. Accordingly, exports yield revenue (receipts from sales). These do not yield income. Because, income is in the form of rent, interest, profit or wages. Exports do not yield any of these directly.

[**Note:** It is out of revenue that a firm distributes incomes to the owners of factors of production.]

The flow chart chart given on next page shows how estimation of national income using different methods is reconciled. We get triple identity in terms of the equality of estimation of national income using (i) product or value added method, (ii) income method, and (iii) expenditure method.

FOCUS ZONE

Product Method Or Value Added Method

Gross Value Added in the Primary Sector at Market Price
+
Gross Value Added in the Secondary Sector at Market Price
+
Gross Value Added in the Tertiary Sector at Market Price

↓

Gross Domestic Product at Market Price

(–)

Depreciation

↓

Net Domestic Product at Market Price

(–)

Net Indirect Taxes

↓

Net Domestic Product at Factor Cost

(+)

Net Factor Income from Abroad

↓

National Income (NNP_{FC})

Income Method

Compensation of Employees
+
Operating Surplus
+
Mixed Income of the Self-employed

↓

Net Domestic Income

(+)

Net Factor Income from Abroad

↓

National Income (NNP_{FC})

Expenditure Method

Private Final Consumption Expenditure
+
Government Final Consumption Expenditure
+
Gross Domestic Fixed Capital Formation
+
Change in Stock or Inventory Investment
+
Net Exports (Exports – Imports)

↓

Gross Domestic Product at Market Price

(–)

Depreciation

↓

Net Domestic Product at Market Price

(–)

Net Indirect Taxes

↓

Net Domestic Product at Factor Cost

(+)

Net Factor Income from Abroad

↓

National Income (NNP_{FC})

Dos and Don'ts

Do not include the following items in the estimation of national income:

(i) ***Gifts from Abroad:*** These are transfer payments and, therefore, not included in national income.

(ii) ***Unemployment Allowance:*** This is available to those persons who are not employed. This is, therefore, only a transfer payment not included in national income.

(iii) ***Financial Help to Tsunami Victims:*** It is not included in national income since it is a transfer payment.

(iv) ***Purchase of Vegetables by a Restaurant:*** It is not included in national income since it is an intermediate consumption.

(v) ***Expenses on Electricity by a Factory:*** It is not included in national income since it is a part of intermediate consumption.

(vi) ***Leisure-time Activities like Growing Vegetables by Household in his Kitchen Garden:*** By convention, value added through such activities is not accounted for in the estimation of national income/product.

(vii) ***Services rendered by the Housewives:*** These are not included in national income because it is difficult to find their market value, and these are not rendered for the purpose of earning income.

(viii) ***Money Received by an Individual from his Son Working Abroad:*** It is not included in national income of India because it is a kind of transfer income.

(ix) ***Interest Received from a Friend on Loans offered to him for the Purchase of a Motorbike:*** It is not included in national income because loans are not used for production purpose.

(x) ***Corporate Profit Tax:*** It is not included in the estimation of national income as it flows out of profits as a transfer payment to the government.

[**Note:** If profit is not known (in any numerical question) we can find its value by adding up: (a) dividends, (b) undistributed profits, and (c) corporate profit tax. However, if the question is: how do we treat corporate tax in the estimation of national income then the answer is as in point (x) above.]

Do include the following items in the estimation of national income:

(i) ***Defence and Security Services:*** For maintaining law & order and defence of the country, the government has to employ defence personnel, policemen, judges and others. The services of these persons may be taken as intermediary or final. These are final services so far as they provide security and peaceful existence to the households. On the other hand, they may be treated as intermediary services in so far as they provide peaceful environment to the productive process. However, ***it is very difficult to assess the extent to which these services are intermediate or final. Accordingly, as a matter of convention, these are treated as final services and are, therefore, included in national income.***

(ii) ***Free Services by the Government:*** Free services by the government like free education, free medical facilities or street lighting involve expenditure by the government which is a part of government final consumption expenditure. Hence, expenditure on these services is taken as a part of expenditure on final goods and services. These are included in national income while using expenditure method.

(iii) ***Employer's Contribution to Provident Fund:*** It is included in national income, since it is paid by the employers on behalf of the employees.

(iv) ***Rent Received by Indian Residents on Buildings Rented out to Foreign Embassies in India:*** It is income from the rest of the world and forms a part of net factor income from abroad. It is included in national income.

(v) ***Profits Earned by a Branch of an Indian Bank in London:*** It is included in the national income since it is a part of net factor income from abroad.

(vi) ***Wages Received by the Indian Employees Working in Pakistan Embassy:*** It is included in national income since Indian employees of Pakistan Embassy are normal residents of India.

(vii) ***Salary to Foreign Technical Specialists:*** As a payment of factor income to the 'non-resident', it reduces national income.

(viii) ***Dividend Received by an Indian Resident from his Investment in a Foreign Financial Firm:*** It is included in national income of India because it is a part of net factor income from abroad.

A Fundamental Question

Argument is sometimes advanced that only the production of those goods should be included in the estimation of national product/income which flow from producers to the consumers through the market. According to the authors of the present text, this is a wrong notion. Consider an economy where farming is the only production activity. Also, assume that all the farmers in this economy produce only for self-consumption: they do not sell their produce in the market, because production is barely enough for consumption by the farming families themselves. Thus, final goods (rice or wheat) are being consumed without any market transaction. If only such goods which are routed through the market are to be recorded, such an economy (where production is only for self-consumption) would be a zero production economy. It sounds ridiculous. Can an economy survive without production? Perhaps never.

Let it be clearly understood that the imputed value of production (by the farmers) for self-consumption is always included in the estimation of national income.

Power Points & Revision Window

Three Different Methods of Measuring National Income

(i) Product Method (or Value Added Method),

(ii) Income Method,

(iii) Expenditure Method.

Product Method (or Value Added Method) is that method which measures the gross value added (or gross domestic product) at market price as the sum total of value added by all the producing units within the domestic territory of the country, during the period of an accounting year. It is adjusted to find national income (NNP_{FC}).

Precaution: Add only the market value of final goods and services, do not include market value of intermediate goods and services.

Or

Avoid double counting.

Double Counting and Avoiding it: Double counting occurs if output of all the producers is added up without considering the fact that output of one producer may have been used as an input by the other.
It can be best avoided by adding up value added, rather than output of different firms.

Value Added = Value of output – Intermediate consumption (referring to expenditure on intermediate goods and services)

Income Method is that method which measures domestic income as the sum total of factor incomes (rent + interest + profit + wages) generated within the domestic territory of a country during the period of an accounting year. Net factor income from abroad is added to domestic income to find national income (NNP_{FC}).

Precaution: Add only factor incomes, do not include transfer payments. Also, do not include income generated through illegal activities (like, gambling).

Expenditure Method is that method which measures the gross domestic product at market price as the sum total of the expenditure (consumption expenditure and investment expenditure) on the purchase of final goods and services produced within the domestic territory of the economy during the period of an accounting year. It is adjusted to find national income (NNP_{FC}).

Precaution: Consider only the expenditure on final goods that causes: (i) final consumption, or (ii) capital formation (also called investment); do not include expenditure on intermediate goods and services. Also, do not consider expenditure on second-hand goods or on shares and bonds.

EXERCISE

1. Objective Type Questions (Remembering & Understanding based Questions)

A. Multiple Choice Questions

Choose the correct option:

1. **Household inventory is:**
   (a) not included in national income
   (b) a stock concept
   (c) both (a) and (b)
   (d) none of these
2. **Remittances from a relative working abroad are:**
   (a) included in national income
   (b) not included in national income
   (c) transfer payments
   (d) both (b) and (c)
3. **Own account production of goods is included in national income because:**
   (a) goods are tangible
   (b) their valuation is possible
   (c) goods are more productive than services
   (d) none of these
4. **Value added refers to:**
   (a) production of durable goods
   (b) output – intermediate consumption
   (c) production of non-durable goods
   (d) expenditure on intermediate goods
5. **Gross domestic capital formation is the sum total of:**
   (a) expenditure on fixed assets
   (b) gross domestic fixed capital formation and change in stock
   (c) net domestic fixed capital formation + inventory investment + depreciation
   (d) both (b) and (c)
6. **Value added method measures the contribution of which of the following within the domestic territory of a country?**
   (a) Household consumers
   (b) The producing enterprises owned by residents of the country
   (c) The producing enterprises owned by the non-residents of the country
   (d) Both (b) and (c)
7. **Which of the following items is not included while estimating national income by income method?**
   (a) Rent
   (b) Mixed income
   (c) Fixed investment
   (d) Undistributed profits
8. **Which of the following is not an element of final consumption expenditure?**
   (a) Household expenditure on food
   (b) Government final consumption expenditure
   (c) Household expenditure on education
   (d) Expenditure on raw material

9. **As a result of double counting, national income is:**
   (a) over-estimated
   (b) under-estimated
   (c) correctly estimated
   (d) not estimated for the entire year of accounting

10. **Which of the following is not included in national income?**
   (a) Receipt of a gift cheque sent by your parents settled abroad
   (b) Repatriation of wages earned by the NRIs to their parents in India
   (c) Excise duty on domestic production
   (d) All of these

11. **Which of the following is not a transfer payment?**
   (a) Interest on national debt
   (b) Retirement pensions
   (c) Old-age pensions
   (d) Donations

12. **Which of the following items is not included while estimating GNP of a country at market price?**
   (a) Sales of the enterprises
   (b) Indirect taxes
   (c) Remittances by NRIs
   (d) Subsidy

13. **Own account production of services is not included in national income because:**
   (a) services are different from goods
   (b) services are not productive
   (c) it is difficult to measure market value of such services
   (d) none of these

14. **Difference between closing stock and opening stock during an accounting year is known as:**
   (a) increase in stock
   (b) change in stock
   (c) decrease in stock
   (d) none of these

15. **Compensation of employees includes:**
   (a) wages and salaries in cash
   (b) wages and salaries in kind
   (c) pension on retirement
   (d) all of these

16. **Operating surplus =**
   (a) Rent + Profit + Interest
   (b) Rent + Interest + Compensation of employees
   (c) NDP_{FC} – Compensation of employees – Mixed income of self-employed
   (d) both (a) and (c)

17. **Which of the following is not included in inventory investment?**
   (a) Change in stock of finished goods
   (b) Change in stock of semi-finished goods
   (c) Change in stock of raw material
   (d) Change in sales during the year

18. **Which of the following is not a part of final expenditure?**
    (a) Consumer goods purchased by the government
    (b) Consumer goods exported to rest of the world
    (c) Seeds purchased by the farmers
    (d) Government fixed investment expenditure
19. **Problem of double counting can be avoided by using:**
    (a) final output method
    (b) value added method
    (c) both (a) and (b)
    (d) neither (a) nor (b)
20. **Which of the following is irrelevant in the estimation of compensation of employees?**
    (a) Free accommodation provided to the school principals
    (b) Free education of the students whose parents are working in schools
    (c) Wages and salaries in cash
    (d) Old-age pensions

Answers

1. (c)	2. (d)	3. (b)	4. (b)	5. (d)	6. (d)	7. (c)	8. (d)	9. (a)	10. (d)
11. (b)	12. (c)	13. (c)	14. (b)	15. (d)	16. (d)	17. (d)	18. (c)	19. (c)	20. (d)

B. Fill in the Blanks

Choose appropriate word and fill in the blank:

1. ______________ is the market value of final goods and services produced in the economy during the period of one year. (GDP_{MP}/NDP_{MP})
2. Value added method is also known as ______________.
(Industrial Origin Method/Factor Payment Method)
3. Value of Output = Sales, if entire output of the year is ______________ by the producers during the year. (sold/stocked)
4. ______________ include land, labour, capital and entrepreneurship.
(Factor inputs/Non-factor inputs)
5. ______________ is that part of the profit which is distributed among the shareholders.
(Distributed profit/Undistributed profit)
6. Sum total of factor incomes generated within the domestic territory of a country during an accounting year is called ______________.
(domestic income/national income)
7. Commissions paid on the sale and purchase of second-hand goods ______________ included in national income. (are/are not)
8. ______________ is used to avoid the problem of double counting.
(Value Added Method/Expenditure Method)
9. Income tax is treated as ______________ in the estimation of national income.
(factor income/transfer income)
10. ______________ investment refers to change in stock during the year. (Fixed/Inventory)

Answers

1. GDP_{MP} 2. Industrial Origin Method 3. sold 4. Factor inputs
5. Distributed profit 6. domestic income 7. are
8. Value Added Method 9. transfer income 10. Inventory

C. True or False

State whether the following statements are True or False:

1. Goods used as inputs are called intermediate goods. (True/False)
2. In case of mixed income, factors of production are hired/purchased from the market. (True/False)
3. In the general government sector, production is meant only for collective consumption. (True/False)
4. Transfer payments do not cause any value addition in the economy. (True/False)
5. Value added includes the value of intermediate goods used in production. (True/False)
6. According to Distributed Share Method, national income is estimated in terms of factor payments during an accounting year. (True/False)
7. Undistributed profit is retained by the firms to meet some contingent expenses. (True/False)
8. Non-durable consumer goods are repeatedly used for several years. (True/False)
9. Rice produced and consumed by the farming families themselves is not included in national income. (True/False)
10. Retirement pensions are like a deferred wage. (True/False)

Answers

1. True 2. False 3. True 4. True 5. False 6. True 7. True 8. False 9. False 10. True

D. Matching the Correct Statements

1. **From the set of statements given in Column I and Column II, choose the correct pair of statements:**

Column I	Column II
A. Imputed rent of owner occupied houses	(i) Included in the estimation of national income
B. Net exports	(ii) Difference between imports and exports during an accounting year
C. Pension on retirement	(iii) Old-age pension
D. Expenditure on second-hand goods	(iv) Included in the estimation of national income

Alternatives:

(a) A—(i)
(b) B—(ii)
(c) C—(iii)
(d) D—(iv)

2. Identify the correct sequence of alternatives given in Column II by matching them with respective items in Column I:

Column I	Column II
A. Old-age pensions	(i) A component of corporate profit
B. Value of non-factor inputs	(ii) Closing Stock – Opening Stock
C. Corporate tax	(iii) Intermediate consumption
D. Change in stock	(iv) Unilateral payments

Alternatives:

(a) A—(iv), B—(i), C—(ii), D—(iii)
(b) A—(ii), B—(i), C—(iv), D—(iii)
(c) A—(iv), B—(iii), C—(i), D—(ii)
(d) A—(iii), B—(i), C—(ii), D—(iv)

Answers

1. (a) A—(i)
2. (c) A—(iv), B—(iii), C—(i), D—(ii)

E. Assertion and Reason

In the following questions (1-5), a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct alternative among those given below:

Alternatives:

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A)
(c) Assertion (A) is true but Reason (R) is false
(d) Assertion (A) is false but Reason (R) is true

1. **Assertion (A)** : Exports are included in the estimation of GDP.
   Reason (R) : Scholarships granted to the students are included in the estimation of GDP.
2. **Assertion (A)** : Leisure-time activity does not contribute to GDP.
   Reason (R) : It does not involve rendering of any factor service.
3. **Assertion (A)** : Services rendered by the housewives are not included in national income.
   Reason (R) : It is difficult to find their market value, and these are not rendered for the purpose of earning income.
4. **Assertion (A)** : Payment of corporate tax by a firm is not included in the estimation of national income.
   Reason (R) : Corporate tax is a transfer payment by the firm.
5. **Assertion (A)** : Retirement pensions are included in the estimation of national income.
   Reason (R) : Retirement pensions are a kind of deferred wage.

Answers

1. (c) Assertion (A) is true but Reason (R) is false
2. (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
3. (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
4. (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
5. (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)

F. Choose the Correct Alternative

In the following questions (1-5), two statements are given. Read the statements carefully and choose the correct alternative among those given below:

Alternatives:

(a) Both the statements are true

(b) Both the statements are false

(c) Statement 1 is true and Statement 2 is false

(d) Statement 2 is true and Statement 1 is false

1. **Statement 1** : Value of intermediate goods is reflected in the value of final goods.
   Statement 2 : Remittances by the NRIs are not transfer payments.
2. **Statement 1** : Old-age pension is an unilateral payment.
   Statement 2 : Aggregate of rent, interest and profit is called operating surplus.
3. **Statement 1** : Value added includes the value of intermediate goods used in production.
   Statement 2 : Contribution to provident fund by the employers is included in the national income.
4. **Statement 1** : Old-age pensions are included in the estimation of national income.
   Statement 2 : Capital gain is included in the estimation of national income.
5. **Statement 1** : Sale and purchase of second-hand goods is not included in the estimation of GDP.
   Statement 2 : Rise in national income always leads to a rise in per capita income.

Answers

1. (c) Statement 1 is true and Statement 2 is false
2. (a) Both the statements are true
3. (d) Statement 2 is true and Statement 1 is false
4. (b) Both the statements are false
5. (c) Statement 1 is true and Statement 2 is false

G. Case-based Questions

I. *Read the following news report carefully and answer the questions 1-6 on the basis of the same:*

Each Indian would have earned a little over ₹ 11,000 per month on an average in 2019-20 if the entire national income was distributed equally. This is because per capita income stood at ₹ 1,34,226 that year, 6.1 per cent higher than ₹ 1,26,521 in 2018-19. But, growth was the lowest in the new series of GDP (with the base year of 2011-12). The growth in per capita income has been coming down for 3 years. Barring, 2012-13, 2013-14 and 2016-17, the growth had been in single digits in the new series. Per capita income crossed ₹ 1 lakh for the first time in 2016-17.

—Business Standard, May 30, 2020

(Choose the correct alternative)

1. National Income =
   (a) Domestic income + Net factor income from abroad
   (b) Domestic income – Net factor income from abroad
   (c) Compensation of employees + Operating surplus + Mixed income of self-employed + Net factor income from abroad
   (d) Both (a) and (c)

2. Per Capita Income = (Choose the correct alternative)

(a) $\frac{\text{National income}}{\text{Total population}}$ (b) $\frac{\text{National income}}{\text{Total population}} \times 100$

(c) $\frac{\text{Total population}}{\text{National income}}$ (d) $\frac{\text{Total population}}{\text{National income}} \times 100$

3. Rent + Interest + Profit = ______________. (Fill up the blank with correct alternative)

(a) Operating surplus (b) Compensation of employees

(c) GDP_{MP} (d) NDP_{FC}

4. Rise in national income always leads to a rise in per capita income. True or False.

5. Read the following statements carefully and choose the correct alternative among those given below.

Statement 1 : Net exports are a part of domestic income.

Statement 2 : Domestic income includes net factor income from abroad.

Alternatives:

(a) Both the statements are true

(b) Both the statements are false

(c) Statement 1 is true and Statement 2 is false

(d) Statement 2 is true and Statement 1 is false

6. State the formula to calculate GDP_{MP} with the help of income method.

II. *Read the following hypothetical information carefully and answer the questions 1-6 on the basis of the same:*

Items	₹ in lakh
(i) Government final consumption expenditure	1,400
(ii) Net domestic fixed capital formation	650
(iii) Rent	200
(iv) Private final consumption expenditure	1,300
(v) Interest	300
(vi) Net indirect taxes	210
(vii) Change in stock	(–) 60
(viii) Compensation of employees	1,150
(ix) Net exports	(–) 80
(x) Profit	600
(xi) Consumption of fixed capital	150
(xii) Net factor income from abroad	(–) 50

1. The value of operating surplus for the given data is ₹ ______________ lakh. (Fill up the blank with correct alternative)

(a) 500 (b) 1,100

(c) 1,950 (d) 2,250

2. The value of domestic income for the given data is ₹ ______________ lakh.

(Fill up the blank with correct alternative)

(a) 1,950 (b) 2,250

(c) 2,950 (d) 3,000

3. The value of NNP_{MP} for the given data is ₹ ______________ lakh.

(Fill up the blank with correct alternative)

(a) 2,950 (b) 3,000

(c) 3,160 (d) 3,200

4. Identify the correct formula to calculate NDP_{MP}. (Choose the correct alternative)

(a) Compensation of employees + Operating surplus + Net indirect tax

(b) Compensation of employees + Mixed income of self-employed + Depreciation + Net indirect tax

(c) Compensation of employees + Operating surplus + Mixed income of self-employed + Net indirect tax

(d) Compensation of employees + Operating surplus + Mixed income of self-employed + Depreciation – Net indirect tax

5. Read the following statements carefully and choose the correct alternative among those given below:

Statement 1 : Both value added and value of output are identical concepts.

Statement 2 : Sum of value added is equal to sum of factor incomes.

Alternatives:

(a) Both the statements are true

(b) Both the statements are false

(c) Statement 1 is true and Statement 2 is false

(d) Statement 2 is true and Statement 1 is false

6. The value of national income for the given data is ₹ ______________ lakh.

(Fill up the blank with correct alternative)

(a) 2,950 (b) 3,000

(c) 1,100 (d) 1,950

Answers

I. 1. (d) Both (a) and (c)

2. (a) $\dfrac{\text{National income}}{\text{Total population}}$

3. (a) Operating surplus

4. False

5. (c) Statement 1 is true and Statement 2 is false

6. GDP_{MP} = Compensation of employees + Operating surplus + Mixed income of self-employed + Depreciation + Net indirect taxes

II. 1. (b) 1,100

2. (d) 3,000

3. (c) 3,160

4. (c) Compensation of employees + Operating surplus + Mixed income of self-employed + Net indirect tax

5. (d) Statement 2 is true and Statement 1 is false

6. (a) 2,950

H. Data-based Miscellaneous Questions

1. Business Fixed Investment + Government Fixed Investment + Investment on Residential Construction by Households = ______

On the basis of the above chart answer the following question:

Choose the correct alternative to be filled in given blank.

(a) Gross domestic capital formation
(b) Gross domestic fixed capital formation
(c) Final consumption expenditure
(d) None of these

2.

Item Producing Enterprise		Value of Output (₹)	Cost of Intermediate Goods (₹)
1.	Farmer	600	200
2.	Flour Mill	800	600
3.	Baker	1,000	800
4.	Shopkeeper	1,200	1,000

On the basis of the above-mentioned information answer the following question:

Identify the gross value added by all the producing enterprises within the domestic territory of a country.

(a) ₹ 200
(b) ₹ 1,000
(c) ₹ 2,600
(d) ₹ 3,600

Answers

1. (b) Gross domestic fixed capital formation
2. (b) ₹ 1,000

I. 'Very Short Answer' Objective Type Questions

1. **Name the methods for measuring national income.**

Ans. (i) Product method or value added method, (ii) Income method, and (iii) Expenditure method.

2. **What is meant by value added method?**

Ans. Value added method is that method which measures GDP as the sum total of value addition by all producing units within the domestic territory of a country.

3. **What do you mean by the error of double counting?**

Ans. Error of double counting occurs when the value of some goods produced in the economy is counted more than once in the estimation of national income. **Example:** Entire value of wheat sold by the farmers is considered along with the value of wheat purchased by the miller who uses wheat as an input for producing wheat flour.

4. **What is meant by income method?**

Ans. Income method is that method which measures national income as the sum total of factor incomes (compensation of employees, rent, interest and profit) earned by normal residents of a country during an accounting year.

5. **What is meant by expenditure method?**

Ans. Expenditure method is that method which measures national income in terms of the expenditure (consumption expenditure + investment expenditure) on the purchase of final goods and services produced in the economy during the period of an accounting year.

6. **How is expenditure on final goods and services produced within the domestic territory identical with GDP_{MP}?**

Ans. Expenditure on final goods and services produced within the domestic territory is identical with GDP_{MP} because goods and services are purchased at the market price, and GDP_{MP} refers to the market price of goods and services produced within the domestic territory of a country.

7. **Why should the producers maintain inventory stocks?**

Ans. Inventory stocks of finished goods are maintained to cope with demand for these goods in the near future. Inventory stocks of raw material are maintained to avoid all time dependence on the market which is full of uncertainties.

8. **Why are exports included in the estimation of domestic income?**

Ans. Exports are included in the estimation of domestic income because exports are a part of domestically produced goods and services, or because exports are a part of goods and services produced within the domestic territory of a country.

9. **Why are imports considered as a negative item in the estimation of domestic income?**

Ans. Imports are considered as a negative item in the estimation of domestic income because imports are not an expenditure on the domestically produced goods and services in an accounting year. It is an expenditure on the goods produced abroad.

10. **How is net export different from net factor income from abroad?**

Ans. Net export refers to the difference between exports and imports during an accounting year.

$$\text{Net Exports} = \text{Exports} - \text{Imports}$$

Net factor income from abroad refers to:

Factor income earned by our residents from rest of the world

– Factor income earned by non-residents from the domestic territory of our country.

2. Reason-based Questions (Comprehension of the Subject-matter)

Read the following statements carefully. Write True or False with a reason.

1. **Value addition occurs even when goods do not undergo any material transformation.**

Ans. True. Value addition occurs even when goods are purchased for resale, without any material transformation.

2. **Export of goods is not a part of expenditure on the domestic production.**

Ans. False. Export of goods is a part of the expenditure on the domestic production because it is the foreign demand for domestic product.

3. **'Change in stock' is not a stock variable.**

Ans. True. Change in stock is measured per unit of time period. Accordingly, it is a flow variable.

4. **Change in stock is not a component of aggregate expenditure in the economy.**

Ans. False. Change in stock as a part of investment expenditure is a component of aggregate expenditure in the economy.

5. **Money spent by the NRIs settled abroad on the on-line purchase of domestic products is a transfer payment.**

Ans. False. Any on-line purchase of domestic products by the people settled abroad is to be treated as exports.

6. **Undistributed profits are not a part of domestic factor income.**

Ans. False. Undistributed profits are retained earnings of the firms. These are a part of domestic factor income.

7. **GDP is estimated only in the context of a closed economy.**

Ans. False. GDP is estimated in the context of an open economy as well. 'Exports – imports' are a part of GDP, and are related to an open economy.

8. **Remittances by the NRIs are a part of our national income.**

Ans. False. Remittances by the NRIs are transfer payments.

9. **Mixed income of self-employed includes transfer payments.**

Ans. False. Mixed income of the self-employed includes only factor incomes.

10. **Compensation of employees includes compensation received after retirement.**

Ans. True. Compensation of employees = Wages and salaries in cash + Payment in kind + Employers' contribution to social security schemes + Pension on retirement.

11. **Capital formation includes capital goods only.**

Ans. False. Change in the inventory stock is an important component of capital stock. And inventory stock includes both capital goods as well as consumer goods.

12. **Purchase of machinery from abroad is never considered as intermediate consumption.**

Ans. False. Purchase of machinery from abroad is considered as intermediate consumption when it is purchased for purpose of resale.

13. **Purchase of machinery from abroad is a part of domestic capital formation.**

Ans. True. Purchase of machinery from abroad is a part of domestic capital formation. Because, it adds to the existing stock of capital in the domestic economy.

14. **Salaries to Indian employees working in Indian embassies abroad are a part of net factor income from abroad.**

Ans. False. Indian embassies abroad are a part of domestic territory of India. Therefore, salaries to Indian employees working in Indian embassies abroad are a part of domestic factor income.

15. **Profits earned by non-resident companies in India are not a part of our domestic income.**

Ans. False. It is a part of domestic factor income of India because non-resident companies are within the domestic territory of India.

16. **The market value of both final and intermediate goods is included in the estimation of national income.**

Ans. False. Only the value of final goods is included in the estimation of national income. Reason: The value of intermediate goods is reflected in the value of final goods.

17. **Expenditure on the purchase of second-hand plant and machinery from rest of the world is a part of domestic capital formation.**

Ans. True. Expenditure on the purchase of second-hand plant and machinery from rest of the world is a part of domestic capital formation. Because, it adds to the stock of capital in the domestic economy.

18. **Expenditure by the households on the construction of residential buildings should not be treated as investment expenditure.**

Ans. False. Expenditure on the construction of residential buildings by the households is a part of investment expenditure. Because, residential buildings are income generating fixed assets.

19. **Imputed rent on owner occupied houses does not involve any payment to others. Accordingly, it should not be included in the estimation of national income.**

Ans. False. Imputed rent is included in the estimation of national income as a component of rent. Houses are income generating assets, no matter who occupies them.

20. **Goods produced but retained for self-use (and not sold in the market) are not included in the estimation of national income.**

Ans. False. Goods produced and retained for self-use are included in the estimation of national income. Because these goods involve value-addition.

21. **Free dress provided to nurses by the hospital is included in the estimation of national income.**

Ans. False. Free dress provided to nurses by the hospital is not included in the estimation of national income if the dress is a uniform provided by the hospital at the time of work. It is to be treated as an intermediate consumption.

22. **Investment on the purchase of shares is a part of net capital formation.**

Ans. False. Net capital formation leads to increase in the stock of capital whereas shares only lead to the transfer of ownership.

23. **In the estimation of GDP (using expenditure method), we focus only on expenditure by the residents of a country.**

Ans. False. In the estimation of GDP, we include all expenditure on the domestically produced goods both by the residents as well as non-residents of a country.

24. **Income from exports is a part of net factor income from abroad.**

Ans. False. Income from exports is a part of net exports and therefore, a component of gross domestic product.

3. HOTS & Applications

1. **Is net factor income from abroad zero in case exports = imports?**

Ans. No. Net factor income from abroad is the difference between the factor income earned by normal residents of a country from abroad and the factor income earned by non-residents in our country. It has nothing to do with exports and imports.

2. **Is brokerage paid to Real Estate Agents on the sale and purchase of only new (and not the old) houses included in the estimation of national income?**

Ans. No. Brokerage paid to Real Estate Agents on the sale and purchase of new as well as old houses is included in the estimation of national income. **Reason:** Brokerage relates to payment for services, no matter on new or old houses.

3. **Show how the sum of value added is equal to sum of factor incomes.**

Ans. All value added is distributed as factor incomes. Therefore, sum total of value added is bound to be equal to sum total of factor incomes.

4. **Do you think income in the form of capital gains is a part of capital formation?**

Ans. Income in the form of capital gains means income accruing to the individuals on account of increase in prices of land, shares, bonds, etc. They do not add to the stock of physical capital. Hence, taking income in the form of capital gains as capital formation is wrong.

5. **National income exceeds domestic income only when exports are greater than imports. Comment.**

Ans. The given statement is incorrect. When factor income from abroad is greater than factor income to abroad, national income exceeds domestic income. Exports/imports have nothing to do with net factor income from abroad.

6. **Only those goods are included in the estimation of domestic product which are sold or purchased in domestic market of a country. Defend or refute.**

Ans. The above statement is incorrect. Exports are also a part of domestic product. Exports include goods produced in the domestic economy and sold in rest of the world.

7. **How are dividends, corporate taxes and undistributed profits treated in national income?**

Ans. (i) **Dividends:** These are included in the estimation of national income as these are a part of factor payments.

(ii) **Corporate Taxes:** These are not included, as all taxes are transfer payments.

(iii) **Undistributed Profits:** These are retained earnings of the firms and are a part of factor payments. Therefore, these are included in the estimation of national income.

8. ***Ceasefire violations by Pakistan have led to the death of many Indian soldiers in Jammu and Kashmir. Will the payment of family pension to the families of the soldiers be included in the estimation of national income?***

Ans. Yes. Because payment of family pension is like payment of the retirement pension. It is related to the employment contract signed by the government with the soldiers.

9. ***Mona purchased a car worth ` 5,50,000 to commute between her home and the office.***
Would you treat it as an intermediate consumption and therefore not included in the estimation of national income? Justify your answer.

Ans. Car purchased by Mona will not be treated as intermediate good. Because, Mona is not using her car for purpose of value adding through intermediate consumption. Mona's car would be treated as a final good, being finally used by her as a consumer durable. Mona's expenditure on car would be treated as private final consumption expenditure.

10. **In what sense can defence and security services provided by the government be treated as intermediate services?**

Ans. Defence and security services provided by the government can be treated as intermediate services in the sense that these services offer a peaceful environment to the producers for the production of goods and services.

11. ***Cash transfer of subsidy on LPG raises annual income of the households.***
Does it mean a rise in domestic income? Justify your answer.

Ans. No. Cash transfer of subsidy is to be treated as transfer payment. Of course, it increases annual income of the households. But this increase is not related to factor services rendered by the households. Accordingly, transfer of cash subsidy does not lead to any rise in domestic income.

4. Analysis & Evaluation

1. **How can estimates of GDP using income method and expenditure method be identical when households do not spend their entire income on the purchase of goods and services, and a part of them remain unsold during an accounting year?**

Ans. Goods which remain unsold during the year are treated as a part of change in stock during the year. These goods become a part of inventory investment of the producers. Accordingly, income method and expenditure method must yield identical estimates of GDP.

2. **Explain the economic value of using net output method for the estimation of GDP.**

Ans. Net output method refers to value added method of estimating national income. Because:

Output – Intermediate consumption = Net output = Value added.

When we estimate value added by each producing unit in the country, we make an assessment of the level of production activity in the economy. Low value added in the economy (compared to other economies of the world) implies low level of output, and therefore, low level of income and employment. It points to low quality of life of the people.

Since value added is estimated across different sectors of the economy (primary, secondary and tertiary sectors), we are also able to assess the relative contribution of these sectors in GDP. This helps the government to formulate sector wise policies of growth and development.

GST is based on the use of value added method. It is a single tax replacing all indirect taxes in the economy.

5. CBSE Questions—Past 5 years (With Answers or Reference to the Text for Answers)

1. Calculate Net Domestic Product at Factor Cost:

Items	(₹ in crore)
(i) Private final consumption expenditure	8,000
(ii) Government final consumption expenditure	1,000
(iii) Exports	70
(iv) Imports	120
(v) Consumption of fixed capital	60
(vi) Gross domestic fixed capital formation	500
(vii) Change in stock	100
(viii) Factor income to abroad	40
(ix) Factor income from abroad	90
(x) Indirect taxes	700
(xi) Subsidies	50
(xii) Net current transfers to abroad	(–) 30

[Page 456, 457] [CBSE Delhi 2017]

2. Calculate National Income:

Items	(₹ in crore)
(i) Net factor income to abroad	(–) 50
(ii) Net indirect taxes	800
(iii) Net current transfers from rest of the world	100
(iv) Net imports	200
(v) Private final consumption expenditure	5,000
(vi) Government final consumption expenditure	3,000
(vii) Gross domestic capital formation	1,000
(viii) Consumption of fixed capital	150
(ix) Change in stock	(–) 50
(x) Mixed income	4,000
(xi) Scholarship to students	80

[Page 457] [CBSE Delhi 2017]

3. Calculate Net National Product at Market Price:

Items	(₹ in crore)
(i) Gross domestic fixed capital formation	400
(ii) Private final consumption expenditure	8,000
(iii) Government final consumption expenditure	3,000
(iv) Change in stock	50
(v) Consumption of fixed capital	40
(vi) Net indirect taxes	100
(vii) Net exports	(–) 60
(viii) Net factor income to abroad	(–) 80

(ix)	Net current transfers from abroad	100
(x)	Dividend	100

[Page 457, 458] [CBSE Delhi 2017]

4. How will you treat the following while estimating domestic product of a country? Give reasons for your answer:
   (a) Profits earned by branches of country's bank in other countries.
   (b) Gifts given by an employer to his employees on independence day.
   (c) Purchase of goods by foreign tourists. [CBSE Delhi 2017]
   [Page 471]
5. Explain the precautions that should be taken while estimating national income by expenditure method. [CBSE (AI) 2017]

   Or

   What precautions should be taken while estimating national income by expenditure method? Explain. [CBSE (F) 2017]
   [Page 106, 107]
6. Explain the precautions that are taken while estimating national income by value added method. [CBSE (AI) 2017]

   Or

   What precautions should be taken while estimating national income by value added method? Explain.
   [Page 94, 95] [CBSE (F) 2017]
7. Calculate National Income:

	Items	(₹ in crore)
(i)	Compensation of employees	2,000
(ii)	Rent	400
(iii)	Profit	900
(iv)	Dividend	100
(v)	Interest	500
(vi)	Mixed income of self-employed	7,000
(vii)	Net factor income to abroad	50
(viii)	Net exports	60
(ix)	Net indirect taxes	300
(x)	Depreciation	150
(xi)	Net current transfers to abroad	30

[Page 449, 450] [CBSE (AI) 2017]

8. Calculate the Net National Product at Market Price:

	Items	(₹ in crore)
(i)	Mixed income of self-employed	8,000
(ii)	Depreciation	200
(iii)	Profit	1,000
(iv)	Rent	600
(v)	Interest	700
(vi)	Compensation of employees	3,000

(vii) Net indirect taxes	500
(viii) Net factor income to abroad	60
(ix) Net exports	(–) 50
(x) Net current transfers to abroad	20

[Page 450]

9. Calculate the Gross National Product at Market Price: [CBSE (AI) 2017]

Items	(₹ in crore)
(i) Compensation of employees	2,500
(ii) Profit	700
(iii) Mixed income of self-employed	7,500
(iv) Government final consumption expenditure	3,000
(v) Rent	400
(vi) Interest	350
(vii) Net factor income from abroad	50
(viii) Net current transfers to abroad	100
(ix) Net indirect taxes	150
(x) Depreciation	70
(xi) Net exports	40

[Page 450, 451] [CBSE (AI) 2017]

10. Will the following be included in the domestic product of India? Give reasons for your answer.
    (a) Profits earned by foreign companies in India.
    (b) Salaries of Indians working in the Russian Embassy in India.
    (c) Profits earned by a branch of State Bank of India in Japan. [CBSE (AI) 2017]
    [Page 472]
11. Will the following be included in the national income of India? Give reasons for your answer.
    (a) Financial assistance to flood victims.
    (b) Profits earned by the branches of a foreign bank in India.
    (c) Salaries of Indians working in the American Embassy in India. [CBSE (AI) 2017]
    [Page 472]
12. Explain 'mixed income of self-employed' and give an example. [CBSE (F) 2017]
    [Page 100]
13. Calculate National Income:

Items	(₹ in crore)
(i) Profit	1,000
(ii) Mixed income of self-employed	15,000
(iii) Dividends	200
(iv) Interest	400
(v) Compensation of employees	7,000
(vi) Net factor income to abroad	100
(vii) Consumption of fixed capital	400
(viii) Net exports	(–) 200
(ix) Net indirect taxes	800

(x) Net current transfers to rest of the world	40
(xi) Rent	500

[Page 451] [CBSE (F) 2017]

14. Calculate Net National Product at Market Price:

Items	(₹ in thousand crore)
(i) Compensation of employees	250
(ii) Mixed income of self-employed	600
(iii) Profit	80
(iv) Rent	30
(v) Interest	40
(vi) Net factor income to abroad	(–) 10
(vii) Net exports	15
(viii) Consumption of fixed capital	20
(ix) Net indirect taxes	10
(x) Net current transfers to abroad	8

[Page 451, 452] [CBSE (F) 2017]

15. Calculate National Income:

Items	(₹ in crore)
(i) Compensation of employees	2,000
(ii) Profit	800
(iii) Rent	300
(iv) Interest	250
(v) Mixed income of self-employed	7,000
(vi) Net current transfers to abroad	200
(vii) Net exports	(–) 100
(viii) Net indirect taxes	1,500
(ix) Net factor income to abroad	60
(x) Consumption of fixed capital	120

[Page 452] [CBSE (F) 2017]

16. Calculate (a) Operating Surplus, and (b) Domestic Income:

Items	(₹ in crore)
(i) Compensation of employees	2,000
(ii) Rent and interest	800
(iii) Indirect taxes	120
(iv) Corporation tax	460
(v) Consumption of fixed capital	100
(vi) Subsidies	20
(vii) Dividend	940
(viii) Undistributed profits	300
(ix) Net factor income to abroad	150
(x) Mixed income	200

[Page 452] [CBSE 2018]

17. Define the problem of double counting in the estimation of national income. Discuss two approaches to correct the problem of double counting. [CBSE 2019 (58/1/1), 2020 (58/3/1)]
[Page 95, 96]

18. Given the following data, find the missing value of 'Government Final Consumption Expenditure' and 'Mixed Income of Self-employed'.

Items	(₹ in crore)
(i) National income	71,000
(ii) Gross domestic capital formation	10,000
(iii) Government final consumption expenditure	?
(iv) Mixed income of self-employed	?
(v) Net factor income from abroad	1,000
(vi) Net indirect taxes	2,000
(vii) Profits	1,200
(viii) Wages and salaries	15,000
(ix) Net exports	5,000
(x) Private final consumption expenditure	40,000
(xi) Consumption of fixed capital	3,000
(xii) Operating surplus	30,000

[Page 465] [CBSE 2019 (58/1/1)]

19. Given the following data, find the missing values of 'Private Final Consumption Expenditure' and 'Operating Surplus'.

Items	(₹ in crore)
(i) National income	50,000
(ii) Net indirect taxes	1,000
(iii) Private final consumption expenditure	?
(iv) Gross domestic capital formation	17,000
(v) Profits	1,000
(vi) Government final consumption expenditure	12,500
(vii) Wages and salaries	20,000
(viii) Consumption of fixed capital	700
(ix) Mixed income of self-employed	13,000
(x) Operating surplus	?
(xi) Net factor income from abroad	500
(xii) Net exports	2,000

[CBSE 2019 (58/1/2)]
[Page 465, 466]

20. Given the following data, find the missing values of 'Gross Domestic Capital Formation' and 'Wages and Salaries'.

Items	(₹ in crore)
(i) Mixed income of self-employed	3,500
(ii) Net indirect taxes	300
(iii) Wages and salaries	?
(iv) Government final consumption expenditure	14,000
(v) Net exports	3,000
(vi) Consumption of fixed capital	300

(vii) Net factor income from abroad	700
(viii) Operating surplus	12,000
(ix) National income	30,000
(x) Profits	500
(xi) Gross domestic capital formation	?
(xii) Private final consumption expenditure	11,000

[Page 466, 467] [CBSE 2019 (58/1/3)]

21. Define the following:
    (a) Value addition.
    (b) Income from property and entrepreneurship. [CBSE 2019 (58/2/1)]
    [Page 92, 99, 100]

22. Given the following data, find the values of 'Gross Domestic Capital Formation' and 'Operating Surplus'.

Items	(₹ in crore)
(i) National income	22,100
(ii) Wages and salaries	12,000
(iii) Private final consumption expenditure	7,200
(iv) Net indirect taxes	700
(v) Gross domestic capital formation	?
(vi) Depreciation	500
(vii) Government final consumption expenditure	6,100
(viii) Mixed income of self-employed	4,800
(ix) Operating surplus	?
(x) Net exports	3,400
(xi) Rent	1,200
(xii) Net factor income from abroad	(–) 150

[Page 467] [CBSE 2019 (58/2/1)]

23. Given the following data, find the values of 'Government Final Consumption Expenditure' and 'Mixed Income of Self-employed':

Items	(₹ in crore)
(i) National income	7,100
(ii) Government final consumption expenditure	?
(iii) Gross domestic capital formation	1,000
(iv) Mixed income of self-employed	?
(v) Net indirect taxes	200
(vi) Net factor income from abroad	100
(vii) Private final consumption expenditure	4,000
(viii) Consumption of fixed capital	300
(ix) Profits	120
(x) Wages and salaries	1,500
(xi) Net exports	500
(xii) Operating surplus	3,000

[Page 467, 468] [CBSE 2019 (58/3/1)]

24. Given the following data, find the values of 'Operating Surplus' and 'Gross Domestic Capital Formation':

Items	(₹ in crore)
(i) Government final consumption expenditure	2,000
(ii) Mixed income of self-employed	1,500
(iii) National income	12,000
(iv) Net factor income from abroad	200
(v) Operating surplus	?
(vi) Profits	500
(vii) Private final consumption expenditure	6,000
(viii) Net indirect taxes	700
(ix) Net exports	1,800
(x) Consumption of fixed capital	600
(xi) Gross domestic capital formation	?
(xii) Wages and salaries	6,000

[Page 468, 469] [CBSE 2019 (58/3/2)]

25. Given the following data, find the values of 'Operating Surplus' and 'Net Exports':

Items	(₹ in crore)
(i) Mixed income of self-employed	700
(ii) Net factor income from abroad	150
(iii) Private final consumption expenditure	2,200
(iv) Profits	200
(v) Net indirect taxes	150
(vi) National income	5,000
(vii) Gross domestic capital formation	1,100
(viii) Wages and salaries	2,200
(ix) Net exports	?
(x) Government final consumption expenditure	1,300
(xi) Consumption of fixed capital	200
(xii) Operating surplus	?

[Page 469] [CBSE 2019 (58/3/3)]

26. (a) Define 'net factor income from abroad'. How is it different from 'net exports'?

(b) Calculate the value of "Rent" from the following data:

Items	(₹ in crore)
(i) Gross domestic product at market price	18,000
(ii) Mixed income of self-employed	7,000
(iii) Subsidies	250
(iv) Interest	800
(v) Rent	?
(vi) Profit	975
(vii) Compensation of employees	6,000
(viii) Consumption of fixed capital	1,000
(ix) Indirect tax	2,000

[Page 105, 121, 453] [CBSE 2019 (58/4/1)]

27. (a) Define net exports. How is it different from net factor income from abroad?

(b) Calculate value of "Interest" from the following data:

Items	(₹ in crore)
(i) Indirect tax	1,500
(ii) Subsidies	700
(iii) Profits	1,100
(iv) Consumption of fixed capital	700
(v) Gross domestic product at market price	17,500
(vi) Compensation of employees	9,300
(vii) Interest	?
(viii) Mixed income of self-employed	3,500
(ix) Rent	800

[Page 105, 121, 453] [CBSE 2019 (58/4/2)]

28. (a) Define 'value of output'. How is it different from 'value addition' ?

(b) Calculate the value of "Mixed Income of Self-employed" from the following data:

Items	(₹ in crore)
(i) Compensation of employees	17,300
(ii) Interest	1,200
(iii) Consumption of fixed capital	1,100
(iv) Mixed income of self-employed	?
(v) Subsidies	750
(vi) Gross domestic product at market price	27,500
(vii) Indirect taxes	2,100
(viii) Profits	1,800
(ix) Rent	2,000

[Page 92, 453, 454] [CBSE 2019 (58/4/3)]

29. Distinguish between net factor income from abroad and net exports. [CBSE 2019 (58/5/1)]

[Page 105, 121]

30. What is meant by the problem of double counting? Discuss briefly the two approaches to avoid this problem. [CBSE 2019 (58/5/1)]

[Page 95, 96]

31. Given the following data, find the values of 'Operating Surplus' and 'Net Exports':

Items	(₹ in crore)
(i) Wages and salaries	2,400
(ii) National income	4,200
(iii) Net exports	?
(iv) Net factor income from abroad	200
(v) Gross domestic capital formation	1,100
(vi) Mixed income of self-employed	400
(vii) Private final consumption expenditure	2,000
(viii) Net indirect taxes	150
(ix) Operating surplus	?

(x) Government final consumption expenditure	1,000
(xi) Consumption of fixed capital	100
(xii) Profits	500

[Page 469, 470] [CBSE 2019 (58/5/1)]

32. Calculate the value of 'Change in Stock' from the following data:

Items	(₹ in crore)
(i) Sales	400
(ii) Net value added at factor cost (NVAFC)	200
(iii) Subsidies	10
(iv) Change in stock	?
(v) Depreciation	40
(vi) Intermediate consumption	100

[CBSE 2020 (58/1/1)]

[Page 445]

33. Discuss briefly the three components of 'Income from Property and Entrepreneurship'.

Or [CBSE 2020 (58/1/1)]

State the three components of income from property and entrepreneurship. [CBSE 2020 (58/4/1)]

[Page 99, 100]

34. Distinguish between 'value of output' and 'value added'. [CBSE 2020 (58/2/1)]

[Page 92]

35. Calculate Gross Value Added at Market Price (GVA_{MP}) from the following data:

Items	(₹ in crore)
(i) Depreciation	20
(ii) Domestic sales	200
(iii) Change in stock	(–) 10
(iv) Exports	10
(v) Single use producer goods	120
(vi) Net indirect taxes	20

[CBSE 2020 (58/3/1)]

[Page 445, 446] [CBSE 2020 (58/3/2)]

36. Define income from property and entrepreneurship.

[Page 99, 100]

37. 'Domestic services (Household services) performed by a woman are not considered as an economy activity.' [CBSE 2020 (58/4/1)]

Defend or refute the given statement with valid reason.

[Page 110]

38. Calculate Net Value Added at Factor Cost (NVA_{FC}) from the following data:

Items	(₹ in crore)
(i) Values of output	800
(ii) Intermediate consumption	200
(iii) Indirect taxes	30
(iv) Depreciation	20

(v) Subsidies	50
(vi) Purchase of machinery	50

[CBSE 2020 (58/4/1)]

[Page 446]

39. Which of the following is not a 'factor payment'? (Choose the correct alternative) [CBSE 2020 (58/5/1)]

(a) Free uniform to defence personnel
(b) Salaries to the Members of Parliament
(c) Rent paid to the owner of a building
(d) Scholarship given to the students

[(d)]

40. Combined factor income, which can't be separated into various factor income components is known as ______________. (Fill up the blank with correct answer) [CBSE 2020 (58/5/1)]

[mixed income of self-employed]

41. Net Domestic Fixed Capital Formation + Change in Stock = ______________. (Fill up the blank with correct answer) [CBSE 2020 (58/5/1)]

[Net domestic capital formation]

42. Calculate Gross Value Added at Market Price:

Items	(₹ in crore)
(i) Depreciation	20
(ii) Domestic sales	200
(iii) Change in stocks	(–) 10
(iv) Exports	10
(v) Single use producer goods	120

[Page 446] [CBSE 2020 (58/5/1)]

43. Calculate Net Value Added at Factor Cost from the following data:

Items	(₹ in crore)
(i) Durable producer goods (with a life span of 10 years)	10
(ii) Single use producer goods	5
(iii) Sales	20
(iv) Unsold goods (Stock)	2
(v) Goods and Services tax (GST)	1

[Page 446, 447] [CBSE 2020 (58/5/2)]

44. Rent + Interest + Profit = ______________. (Fill up the blank with correct answer) [CBSE 2020 (58/5/3)]

[Operating surplus]

45. Calculate Net Domestic Product at Factor Cost:

Items	(₹ in crore))
(i) Interest	700
(ii) Compensation of employees	3,000

(iii) Net indirect taxes	500
(iv) Rent and Profit	700
(v) Transfer payments by government	10

[Page 454] [CBSE 2020 (58/5/3)]

6. NCERT Questions (With Hints to Answers)

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

   [Hint: Planned inventory accumulation refers to desired inventory stock. This is maintained by the producers with a view to exploiting potential demand for his product. Otherwise, the producer might suffer the loss of unfulfilled demand. Unplanned inventory accumulation refers to undesired inventory stock. It arises because demand for the product turns out to be lower than expected. Accordingly, unplanned inventory accumulation leads to losses.

   Value Added = Sales, net of intermediate costs + Change in inventory stock (Closing inventory stock – Opening inventory stock).]

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

   [Hint: The four factors of production are land, labour, capital and entrepreneurship. The remunerations to each of these are called compensation of employees (reward for labour), rent (reward for land), interest (reward for capital) and profit (reward for entrepreneurship).]

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

   [Hint: Factor payments are equal to factor incomes. Income is either spent on the purchase of final goods and services or is saved. Expenditure of income on the final goods either causes final consumption expenditure or investment expenditure. To the extent income is saved (or not spent), final goods remain unsold. But unsold goods are treated as a part of inventory investment, and therefore, a part of total investment expenditure in the economy. Hence, aggregate final expenditure of an economy is equal to aggregate factor payments. Algebraically,

   $$Y = C + S$$
   $$= C + I, \text{ because } S = I.]$$

4. **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.**

   [Hint:

   Three Identities of Calculating GDP

Value Addition		Income Generated		Final Expenditure
Value of output (Sales + ΔStock) – Intermediate consumption = GVA_{MP} = GDP_{MP}	≡	Compensation of employees + Rent + Interest + Profit + Mixed income of self-employed + Depreciation + Net indirect taxes = GDP_{MP}	≡	Private final consumption expenditure + Government final consumption expenditure + Gross domestic fixed investment + Inventory investment + Export – Import = GDP_{MP}

Value added is identical with income generated because value added (in terms of NDP_{FC}) is distributed as factor incomes among households who are owners of the factors of production. Further GDP_{MP} (in terms of value addition) is identical with expenditure on final goods and services, because value of expenditure is nothing but market price of the domestically produced final goods and services during an accounting year.]

5. **Suppose the GDP at market price of a country in a particular year was ₹ 1,100 crore. Net factor income from abroad was ₹ 100 crore. The value of indirect taxes – subsidies was ₹ 150 crore and national income was ₹ 850 crore. Calculate the aggregate value of depreciation.**

[Hint: GDP_{MP} = ₹ 1,100 crore, NFIA (Net factor income from abroad) = ₹ 100 crore, NIT (Net indirect taxes) = ₹ 150 crore and NNP_{FC} (National income) = ₹ 850 crore.

$$
\begin{aligned}
NNP_{FC} + NIT &= NNP_{MP} \\
&= ₹\,850 \text{ crore} + ₹\,150 \text{ crore} \\
&= ₹\,1{,}000 \text{ crore} \\
GDP_{MP} + NFIA &= GNP_{MP} \\
&= ₹\,1{,}100 \text{ crore} + ₹\,100 \text{ crore} \\
&= ₹\,1{,}200 \text{ crore} \\
\text{Depreciation} &= GNP_{MP} - NNP_{MP} \\
&= ₹\,1{,}200 \text{ crore} - ₹\,1{,}000 \text{ crore} \\
&= ₹\,200 \text{ crore.]}
\end{aligned}
$$

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

[Hint: Assuming intermediate consumption = 0 and change in stock (ΔStock) = 0.

(i) GVA_{MP} = ₹ 500 (Raju's contribution to GDP)

(ii) $NVA_{MP} = GVA_{MP}$ – Depreciation

= ₹ 500 – ₹ 50 = ₹ 450 (Raju's contribution to NNP_{MP})

(iii) $NVA_{FC} = NVA_{MP}$ – Net indirect taxes

= ₹ 450 – ₹ 30

= ₹ 420 (Raju's contribution to NNP_{FC}).]

7. Miscellaneous Questions and Reference to the Text for Answers

A. Questions of 3 & 4 marks each

1. State any three of the precautions that are necessary while estimating the national income by value added method. [Page 94, 95]
2. Explain the problem of double counting. Also state one of the ways of avoiding this problem. [Page 95, 96]
3. What precautions are taken while measuring national income by income method? [Page 101, 102]
4. Briefly outline the expenditure method of measuring net domestic product of an economy. [Page 104–106]

5. State three precautions to be taken while measuring national income by expenditure method. [Page 106, 107]

6. State three types of expenditures that are not included while estimating national income by expenditure method. Why are these not included? [Page 106, 107]

B. Questions of 6 marks each

1. Explain the product method of estimating national income. [Page 92–94]
2. Explain the income method of estimating national income. [Page 98–100]
3. Explain the expenditure method of estimating national income. [Page 104–106]
4. What precautions are necessary while estimating national income by value added or product method? [Page 94, 95]
5. What precautions are necessary while estimating national income by income method? [Page 101, 102]
6. Explain the precautions required to be taken in estimating national income by expenditure method. [Page 106, 107]

Add-on Questions with Hints

7. Explain the term 'compensation of employees' and its components. Giving reasons, state whether the following are treated as compensation of employees:
   (i) Gifts by employers, (ii) Bonus.
   [Page 99; (i) No, it is a transfer payment, (ii) Yes, it is a component of compensation of employees.]
8. Will the following factor incomes be included in domestic factor income of India? Give reasons for your answer.
   (i) Compensation of employees to the residents of Japan working in Indian embassy in Japan.
   [Yes, because Indian embassy in Japan is a part of domestic territory of India.]
   (ii) Profits earned by a branch of foreign bank in India.
   [Yes, because the branch of foreign bank is within the domestic territory of India.]
   (iii) Rent received by an Indian resident from Russian embassy in India.
   [No, because Russian embassy in India is not a part of domestic territory of India.]
   (iv) Profit earned by a branch of State Bank of India in England.
   [No, because the branch of State Bank of India in England is not a part of domestic territory of India.]
   (v) Financial help given to flood victims.
   [No, because financial help is a transfer payment.]
9. Will the following factor incomes be a part of domestic factor income of India? Give reasons for your answer.
   (i) Profit earned by foreign banks from their branches in India.
   [Yes, because the branch of foreign bank is within the domestic territory of India.]
   (ii) Salary received by Indian residents, working in American embassy in India.
   [No, because American embassy in India is not a part of domestic territory of India.]
   (iii) Profit earned by an Indian company from its branch in Singapore.
   [No, because the branch of Indian company is not within the domestic territory of India.]
   (iv) Compensation of employees given to residents of China working in Indian embassy in China.
   [Yes, because Indian embassy in China is a part of domestic territory of India.]

10. Giving reasons, explain how the following are treated in estimating national income:
    (i) Wheat grown by a farmer but used for family's consumption.
    [Yes, because wheat used for self-consumption is a part of total value added in terms of the production of wheat.]
    (ii) Earnings of the shareholders from the sale of shares.
    [No, because there is no net value addition in the economy. Only transfer of ownership (of shares) is occurring.]
    (iii) Expenditure by government on providing free education.
    [Yes, because expenditure on these services is a part of government final consumption expenditure.]
11. Giving reasons, explain how the following are treated in estimating national income:
    (i) Purchase of a truck to carry goods by a production unit.
    [Yes. It is a part of investment expenditure.]
    (ii) Payment of income tax by a producing unit.
    [No. Because, all taxes are transfer payments.]
    (iii) Services rendered by family members to each other.
    [No. Services for self-consumption (or services rendered within the family) are not included in the estimation of national income as their market valuation is not possible.]

DOs and DON'Ts

1. It must be noted that value added in the government sector is equal to compensation of employees only. It is because the data regarding rent and interest are not available for this sector and profit just does not exist because all that is produced is meant for collective consumption, not for sale in the market.
2. Remember that even when houses are self-occupied, these are to be treated as income generating assets. In case of self-occupied houses, rental income is assessed on the basis of rent prevailing in the market. It is called imputed rent on owner-occupied houses. This is to be treated as a part of factor income generated during the year.
3. Don't ever forget to estimate market value of output of the subsistence farmers, even when this is not taken to the market for sale. This value is to be included in the estimation of GDP, even when it does not involve any transaction through the market.
   However, at the same time, vegetables (and other stuff) available to us through kitchen gardening is not a component of gross output in the economy. Because, it is simply related to leisure-time activity. It is unlike production activity of the producing units in the economy.
4. An individual pays income tax out of his factor income, of course. But 'tax' as such is NOT a factor income. It is a transfer payment to the government. Accordingly, never say 'Yes' to this question: Do we include income tax in the estimation of national income? The answer is 'No'.
   Corporate tax is also to be treated similarly.