

## PART B-INTRODUCTORY MACRO ECONOMICS

### Unit -6

#### NATIONAL INCOME AND RELATED AGGREGATES:

##### KEY CONCEPTS

- Macro Economics: Its meaning
- Consumption goods, capital goods, final goods, intermediate goods, stock and flow, gross investment and depreciation.
- Circular flow of income
- Methods of calculation of national income
- Value added method (product method)
- Expenditure method
- Income method
- Concepts and aggregates related to national income
- Gross national product
- Net National product
- Gross and Net domestic product at market price and at factor cost.
- National disposable income (Gross and net)
- Private income
- Personal income
- Personal disposable income
- Real and Nominal GDP
- GDP and welfare

**Macro Economics:** - Macroeconomics is the study of aggregate economic variables of an economy.

**Consumption goods:**- Are those which are bought by consumers as final or ultimate goods to satisfy their wants.

Eg: Durable goods car, television, radio etc.

Non-durable goods and services like fruit, oil, milk, vegetable etc.

Semi durable goods such as crockery etc.

**Capital goods** – capital goods are those final goods, which are used and help in the process of production of other goods and services. E.g.: plant, machinery etc.

**Final goods:** Are those goods, which are used either for final consumption or for investment. It includes final consumer goods and final production goods. They are not meant for resale. So, no value is added to these goods. Their value is included in the national income.

**Intermediate goods** intermediate goods are those goods, which are used either for resale or for further production. Example for intermediate good is- milk used by a tea shop for selling tea.

**Stock:** - Quantity of an economic variable which is measured at a particular point of time. Stock has no time dimension. Stock is static concept.

Eg: wealth, water in a tank.

**Flow:** Flow is that quantity of an economic variable, which is measured during the period of time.

Flow has time dimension- like per hr, per day etc.

Flow is a dynamic concept.

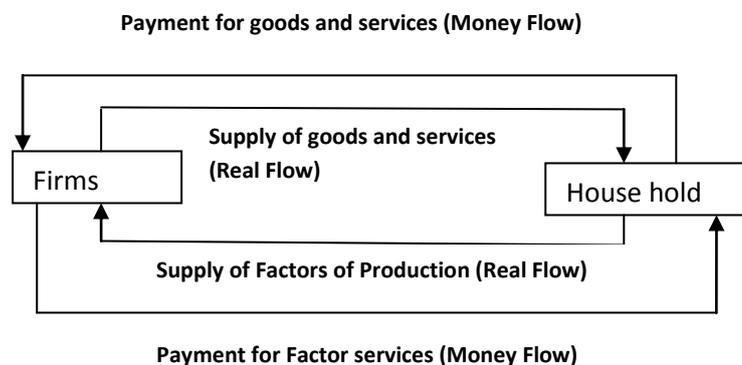
Eg: Investment, water in a stream.

**Investment:** Investment is the net addition made to the existing stock of capital.

**Net Investment** = Gross investment – depreciation.

**Depreciation:** - depreciation refers to fall in the value of fixed assets due to normal wear and tear, passage of time and expected obsolescence.

**Circular flow in a two sector economy.**



Producers (firms) and households are the constituents in a two sectors economy.

Households give factors of production to firm and firms in turn supply goods and services to households.

**Related aggregates**

**Gross Domestic product at market price**

It is the money value of all final goods and services produced during an accounting year with in the domestic territory of a country.

**Gross National product at market price:**

It is a money value of all final goods and services produced by a country during an accounting year including net factor income from abroad.

**Net factor income from abroad:**

Difference between the factor incomes earned by our residents from abroad and factor income earned by non-residents with in our country.

**Components of Net factor income from abroad**

- Net compensation of employees
- Net income from property and entrepreneurship (other than retained earnings of resident companies of abroad)
- Net retained earnings of resident companies abroad

## Formulas

- $NNP_{Mp} = GNP_{Mp} - \text{depreciation}$
- $NDP_{Mp} = GDP_{Mp} - \text{depreciation}$
- $NDP_{Fc} = NDP_{Mp} - \text{Net indirect taxes (indirect tax - subsidiary)}$
- $GDP_{Fc} = NDP_{Fc} + \text{depreciation}$
- $NNP_{Fc} = GDP_{Mp} - \text{depreciation} + \text{Net factor income from abroad} - \text{Net indirect taxes}$
- (NNP<sub>Fc</sub> is the sum total of factor income earned by normal residents of a country during the accounting year)
- $NNP_{Fc} = NDP_{Fc} + \text{Net factor income from abroad.}$

## Concept of domestic (economic) territory

Domestic territory is a geographical territory administered by a government within which persons, goods and capital circulate freely. (Areas of operation generating domestic income, freedom of circulation of persons, goods and capital)

### **Scope identified as**

\*Political frontiers including territorial waters and air space.

\*Embassies, consulates, military bases etc. located abroad but including those located within the political frontiers.

\*Ships, aircrafts etc., operated by the residents between two or more countries.

\*Fishing vessels, oil and natural gas rigs etc. operated by the residents in the international waters or other areas over which the country enjoys the exclusive rights or jurisdiction.

### **Resident (normal resident):-**

Normal resident is a person or an institution who ordinarily resides in that country and whose center of economic interest lies in that country.

(The Centre of economic interest implies :- (1) the resident lives or is located within the economic territory. (2) The resident carries out the basic economic activities of earnings, spending and accumulation from that location 3. His center of interest lies in that country.

### **Relation between national product and Domestic product.**

Domestic product concept is based on the production units located within domestic (economic) territory, operated both by residents and non-residents.

National product concept based on resident and includes their contribution to production both within and outside the economic territory.

National product = Domestic product + Residents contribution to production outside the economic territory (Factor income from abroad) - Non-resident contribution to production inside the economic territory (Factor income to abroad)

**Methods of calculation of national income**

**I - PRODUCT METHOD (Value added method):**

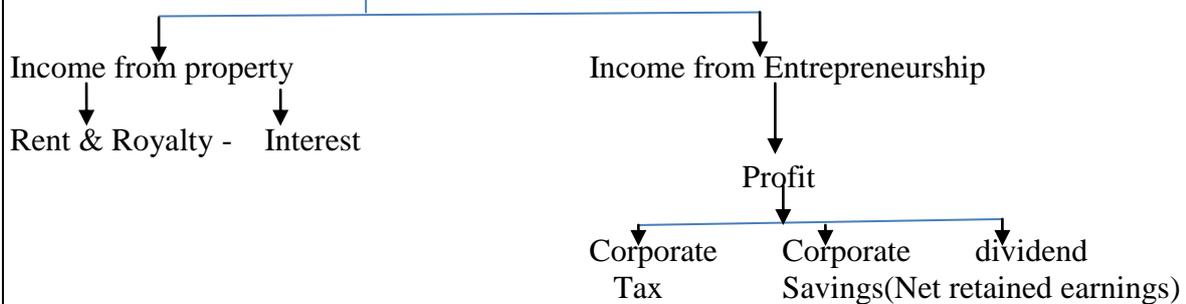
- Sales + change in stock = value of output
- Change in stock = closing stock – opening stock
- Value of output - Intermediate consumption = Gross value added ( $GDP_{Mp}$ )
- $NNP_{Fc} (N.I) = GDP_{Mp} (-)$  consumption of fixed capital (depreciation)

(+) Net factor income from abroad  
 (-) Net indirect tax.

**Income method:**

1. Compensation of employees.

2. Operating surplus.



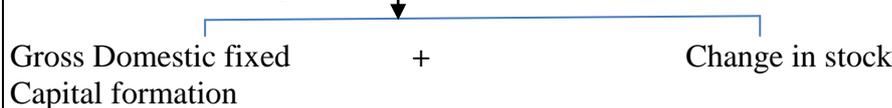
3. Mixed income of self-employed.

- $NDP_{Fc} = (1) + (2) + (3)$
- $NNP_{Fc} = NDP_{Fc} (+)$  Net factor income from abroad
- $GNP_{Mp} = NDP_{Fc} +$  consumption of fixed capital + Net indirect tax

(Indirect tax – subsidy)

**Expenditure method:**

1. Government final consumption expenditure.
2. Private final consumption expenditure.
3. Net Export.
4. Gross domestic capital formation.



$$GDP_{Mp} = (1) + (2) + (3) + (4)$$

$$NNP_{Fc} = GDP_{Mp} - \text{consumption of fixed capital} + NFIFA - \text{Net indirect taxes}$$

**CALCULATION OF NATIONAL DISPOSABLE INCOME, PRIVATE INCOME, PERSONAL INCOME AND PERSONAL DISPOSABLE INCOME**

National Disposable income	Private Income includes factor income as well as Transfer income (Earned income + Unearned income)	Personal Income
<p><i>It is the income from all the sources (Earned Income as well as transfer payment from abroad) available to resident of a country for consumption. expenditure or saving during a year.</i></p> <p><math>NNP_{FC} + \text{Net Indirect tax} + \text{Net current transfer from abroad} = \text{Net National Disposable Income}</math> (Gross National Income includes depreciation)</p>	<p><i>Factor income from net domestic product accruing to private sector includes income from enterprises owned and controlled by the private individual.</i></p> <p><i>Excludes:-</i></p> <ol style="list-style-type: none"> <li><i>Property and entrepreneurial income of the Gov. departmental enterprise</i></li> <li><i>Savings of the Non-departmental Enterprise.</i></li> </ol> <p>Factor Income from NDP Accruing to private sector = <math>NDP_{FC}</math> (-) income from properly entrepreneurship accruing to the govt departmental Enterprises (-) savings of Non departmental enterprises.</p> <p><b><u>Private Income Includes</u></b></p> <ul style="list-style-type: none"> <li>* Factor income from net domestic product accruing to private sector.</li> <li>+ Net factor income from abroad</li> <li>+ Interest on National Debt</li> <li>+ Current transfer from Govt.</li> <li>+ Current transfer from rest of the world.</li> </ul>	<p><i>PI is the income Actually received by the individuals and households from all sources in the form of factor income and current transfers.</i></p> <p>Personal income = Private Income (-) corporation tax. (-) Corporate Savings OR Undistributed profits</p> <p><b><u>Personal disposable income</u></b></p> <p>Personal income (-) Direct Personal tax (-) Miscellaneous Receipts of the govt. Administrative department (fees and fines paid by house hold.)</p>

**One Mark questions.**

- When will the domestic income be greater than the national income?  
Ans: When the net factor income from abroad is negative.
- What is national disposable income?  
Ans. It is the income, which is available to the whole economy for spending or disposal  
 $NNP_{Mp} + \text{net current transfers from abroad} = \text{NDI}$
- What must be added to domestic factor income to obtain national income?  
Ans. Net factor income from abroad.
- Explain the meaning of non-market activities  
Ans. Non marketing activities refer to acquiring of many final goods and services not through regular market transactions. E.g. vegetable grown in the backyard of the house.
- Define nominal GNP  
Ans. GNP measured in terms of current market prices is called nominal GNP.

6. Define Real GNP.

Ans. GNP computed at constant prices (base year price) is called real GNP.

7. Meaning of real flow.

Ans. It refers to the flow of goods and services between different sectors of the economy. Eg. Flow of factor services from household to firm and flow of goods and services from firm to household.

8. Define money flow.

It refers to the flow of money between different sectors of the economy such as firm, household etc. Eg. Flow of factor income from firm to house hold and consumption expenditure from house hold to firm.

### **3- 4 Mark Questions**

1. Distinguish between  $GDP_{Mp}$  and  $GNP_{Fc}$

Ans. The difference between both arise due to (1) Net factor income from abroad. and 2) Net indirect taxes. In  $GDP_{Mp}$  Net factor income from abroad is not included but it includes net indirect taxes.

$$GNP_{Fc} = GDP_{Mp} + \text{net factor income from abroad} - \text{net indirect taxes}$$

2. Distinguish between personal income and private income

Ans. Personal income: -It is the sum total of earned income and transfer incomes received by persons from all sources within and outside the country.

Personal income = private income – corporate tax – corporate savings (undistributed profit)

Private income consists of factor income and transfer income received from all sources by private sectors within and outside the country.

3. Distinguish between nominal GNP and real GNP

Ans. Nominal GNP is measured at current prices. Since this aggregate measures the value of goods and services at current year prices, GNP will change when volume of product changes or price changes or when both changes.

Real GNP is computed at the constant prices. Under real GNP, value is expressed in terms of prices prevailing in the base year. This measure takes only quantity changes. Real GNP is the indicator of real income level in the economy.

4. Explain the main steps involved in measuring national income through product method

Ans.

- a) Classify the producing units into industrial sectors like primary, secondary and tertiary sectors.
- b) Estimate the net value added at the factor cost.
- c) Estimate value of output by sales + change in stock
- d) Estimate gross value added by value of output – intermediate consumption
- e) Deduct depreciation and net indirect tax from gross value added at market price to arrive at net value added at factor cost =  $NDP_{Fc}$
- f) Add net factor income received from abroad to  $NDP_{Fc}$  to obtain  $NNP_{Fc}$  which is national income

5...Explain the steps involved in calculation of national income through income method

- a) Classify the producing enterprises into industrial sectors like primary, secondary and tertiary.
- b) Estimate the following factor income paid out by the producing units in each sector i.e.

\*Compensation of employees

\*Operating surplus

\*Mixed income of self employed

c) Take the sum of the factor income by all the industrial sectors to arrive at the  $NDP_{Fc}$

(Which is called domestic income)

d) Add net factor income from abroad to the net domestic product at factor cost to arrive at the net national product at factor cost.

6. Explain the main steps involved in measuring national income through expenditure method.

a) Classify the economic units incurring final expenditure into distant groups like households, government, firms etc.

b) .Estimate the following expenditure on final products by all economic units

- Private final consumption expenditure
- Government final consumption expenditure
- Gross domestic capital formation
- Net export

(Sum total of above gives  $GDP_{Mp}$ )

c) Deduct depreciation, net indirect taxes to get  $NDP_{Fc}$

d) Add net factor income from abroad to  $NDP_{Fc}$  to arrive at  $NNP_{FC}$ .

7. What are the precautions to be taken while calculating national income through product method (value added method)

a) Avoid double counting of production, take only value added by each production unit.

b) The output produced for self-consumption to be included

c) The sale & purchase of second hand goods should not be included.

d) Value of intermediate consumption should not be included

e) The value of services rendered in sales must be included.

8. Precautions to be taken while calculating national income through income method.

a) Income from owner occupied house to be included.

b) Wages & salaries in cash and kind both to be included.

c) Transfer income should not be included

d) Interest on loans taken for production only to be included. Interest on loan taken for consumption expenditure is non-factor income and so not included.

9. Precautions to be taken while calculations N.I under expenditure method.

a) Avoid double counting of expenditure by not including expenditure on intermediate product

b) Transfer expenditure not to be included

c) Expenditure on purchase of second hand goods not to be included.

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

1) The national income figures give no indications of the population, skill and resources of the country. A country may be having high national income but it may be consumed by the increasing population, so that the level of people's wellbeing or welfare standard of living remains low.

2) High N. I may be due to greater area of the country or due to the concentration of some resources in out particular country.

3) National income does not consider the level of prices of the country. People may be having income but may not be able to enjoy high standard of living due to high prices.

- 4) High N. I may be due to the large contribution made by a few industrialists  
5) Level of unemployment is not taken into account.  
6) National income does not care to reduce ecological degradation. Due to excess of economic activity which leads to ecological degradation reduces the welfare of the people. Hence GNP and economic welfare are not positively related. Income in GNP does not bring about increase in economic welfare.

11. 'Machine purchased is always a final good' do you agree? Give reason for your answer  
Whether machine is a final good or not depends on how it is being used (end use). If machine is bought by a household, then it is a final good. If machine is bought by a firm for its own use, then also it is a final good. If the machine is bought by a firm for resale then it is an intermediate good.

12. What is double counting? How can it be avoided?  
Counting the value of commodities at every stage of production more than one time is called double counting.

It can be avoided by a) taking value added method in the calculation of the national income.

b) By taking the value of final commodity only while calculating N.I

### **6 Mark questions**

1. State whether following is true or false. Give reason for your answer.

a) Capital formation is a flow

True, because it is measured over a period of time.

b) Bread is always a consumer good.

False, it depends upon the end use of bread. When it is purchased by a household it is a consumer good. When purchased by restaurant for making sandwich, it is an intermediate (producer) good.

c) Nominal GDP can never be less than real GDP

False. Nominal GDP can be less than the prices in the base year.

d) Gross domestic capital formation is always greater than gross fixed capital formation.

False, gross domestic capital formation can be less than gross fixed capital formation if change in stock is negative.

2. Why are exports included in the estimation of domestic product by the expenditure method? Can the gross domestic product be greater than the gross national product? Explain  
Expenditure method estimates expenditure on domestic product i.e., expenditure on final goods and services produced within the economic territory of the country. It includes expenditure by residents and nonresidents both. Exports though purchased by non residents are produced within the economic territory and therefore a part of domestic product.

Domestic product can be greater than national product, if the factor income paid to the rest of the world is greater than the factor income received from the rest of the world i.e, when net factor income received from abroad is negative.

3. How will you treat the following while estimating domestic product of India?

a) Rent received by resident Indian from his property in Singapore.

No, it will not be included in domestic product as this income is earned outside the economic territory of India.

b) Salaries if Indians working in Japanese Embassy in India

It will not be included in domestic product of India as embassy of Japan is not a part of economic territory of India.

c) Profits earned by branch of American bank in India.

Yes, it is included as part of domestic product since the branch of American bank is located within the economic territory of India.

d) Salaries paid to Koreans working in the Indian embassy in Korea

Yes, it will be part of domestic product of India because the income is earned within the economic territory of India. Indian embassy in Korea is a part of economic territory of India.

4 How are the following treated in estimating national income from expenditure method? Give reason.

a) Purchase of new car by a household: purchase of car is included in the national income because it is final consumption expenditure, which is part of national income.

b) Purchase of raw material by purchase unit: purchase of raw material by purchase unit is not included in the national income because raw material is intermediate goods and intermediate goods and service are excluded from the national income. Purchase of raw material, if included in national income will result in double counting.

c) Expenditure by the government on scholarship to student is not included in the national income because it is a transfer payment and no productive service is rendered by the student in exchange.

5 Are the following item included in the estimating a country's national income? Give reason.

1) free cloth given to workers: free cloth given to worker is a part of wages in kind i.e. compensation to employee such compensation to employee is paid for the productive services in the economy, it is included in the national income.

2) Commission paid to dealer in old car: commission paid to dealer in old car is included in the estimation of national income because it is the income of the dealer for his productive services to various parties.

3) Growing vegetable in a kitchen garden of the house: growing vegetable in a kitchen garden of the house amount to production, though not for sale for self-consumption. It is included in the national income because it adds to the production of goods.

### **NATIONAL INCOME – NUMERICALS**

**1. Calculate Value Added at factor cost from the following.**

	ITEMS	Rs. CRORES
a.	Purchase of raw materials	30
b.	Depreciation	12
c.	Sales	200
d.	Excise tax	20
e.	Opening stock	15
f.	Intermediate consumption	48
g.	Closing stock	10

Ans: Sales +  $\Delta$  in stock = value of output  
 $200 + (\text{cl. St} - \text{op. st})$   
 $200 + (10 - 15)$   
 $= 200 - 5 = 195$   
 Value of output – intermediate consumption  
 $= \text{value added at MP}$   
 $195 - 48 = 147$   
 V.A at FC = V.A at MP – Net indirect tax  
 $147 - 20$   
 127 crores

**2. Calculate (a) Net National Product at MP, and (b) Gross National Disposable Income**

ITEMS	Rs. CRORES
a. Private final Consumption expenditure	200
b. Net indirect taxes	20
c. Change in stocks	(--) $15$
d. Net current transfers from abroad	(--) $10$
e. Govt. final consumption expenditure	50
f. Consumption of fixed capital	15
g. Net domestic capital formation	30
h. Net factor income from abroad	5
i. Net imports	10

Ans:  $(a) + (e) + (g) + (-i) = \text{NDP}_{\text{MP}}$   
 $200 + 50 + 30 - 10$   
 $280 - 10 = 270$  crores  
 $\text{NNP}_{\text{MP}} = \text{NDP}_{\text{MP}} + \text{NFIFA}$   
 $270 + 5 = 275$   
 $\text{NNP}_{\text{MP}} = 275$  crores

$\text{GNDI} = \text{NNP}_{\text{PC}} + \text{NFIFA} + \text{Net indirect taxes} + \text{Net current transfers from abroad} + \text{Depreciation (comp of fixed capital)}$   
 $\text{NNP}_{\text{MP}} - \text{net in tax} = 275 - 20 = 255$  crores  
 $\text{GNDI} = 255 + 20 + 5 + (-10) + 15$   
 $= 295 - 10 = 285$  crores  
 $\text{GNDI} = 285$  crores

**3. Calculate Gross Domestic Product at Market Price by (a) Production Method and (b) Income Method**

ITEMS	Rs. CRORES
a. Intermediate consumption by	
i) Primary sector	500
ii) Secondary sector	400
iii) Tertiary sector	400
b. Value of output by	
i) Primary sector	1000
ii) Secondary sector	900
iii) Tertiary sector	700
c. Rent	10
d. Compensation of employees	400

e.	Mixed income	650
f.	Operating surplus	300
h.	Net factor income from abroad	(-- )20
i.	Interest	5
j.	Consumption of fixed capital	40
k.	Net indirect taxes	10

Ans: GDP<sub>MP</sub> by production method

(b) (i) + (ii) + (iii) – a (i) + (ii) + (iii) = value added

(1000+ 900 + 700) – (500 -400-400)

2600 – 1300 = 1300 crores Value added at MP (GDP<sub>MP</sub>)

Income method

Compensation of employees + operating surplus + mixed income = NDP<sub>FC</sub>

= 400 + 300 + 650 = 1350 crores

GDP<sub>MP</sub> = NDP<sub>FC</sub> + conspn of fixed capital + net In. tax

= 1350 + 40 + 10

GDP<sub>MP</sub> =1400

**4. Calculate Net National Disposable Income from the following data.**

ITEMS	Rs. CRORES	
a.	Gross domestic product at MP	1000
b.	Net factor income from abroad	(-) 20
c.	Net indirect taxes	120
d.	Consumption of fixed capital	100
e.	Net current transfers from abroad	50

Ans: NNDI = GDP<sub>MP</sub> – conspn of fixed capital + Net FIFA + Net current transfer from abroad

= 1000- 100 + 50 + (-20)

= 880 + 50 = 930 crores

**5. Calculate Gross National Disposable Income from the following.**

ITEMS	Rs. CRORES	
a)	National Income	2000
b)	Net current transfers from rest of the world	200
c)	Consumption of fixed capital	100
d)	Net factor income from abroad	(-) 50
e)	Net indirect taxes	25

Ans: GNDI= (a) + (b) +(c) + (e)

= 2000 + 200 + 100 + 250

GNDI = 2550 crores

**6. ESTIMATE NATIONAL INCOME BY**

**(a) EXPENDITURE METHOD (b) INCOME METHOD FROM THE FOLLOWING DATA Rupees in crores**

1.	Private final consumption expenditure	210
2.	Govt: final consumption expenditure	50
3.	Net domestic capital formation	40
4.	Net exports	(-) 5
5.	Wages & Salaries	170
6.	Employer's contribution	10
7.	Profit	45

8. Interest	20
9. Indirect taxes	30
10. Subsidies	05
11. Rent	10
12. Factor income from abroad	03
13. Consumption of fixed capital	25
14. Royalty	15

Ans: National Income (NNP FC)

Expenditure Method

$$(1) + (2) + (3) + (4) = \text{NDP}_{\text{MP}}$$

$$210 + 50 + 40 + (-5) = 295$$

$$\text{NNP FC} = \text{NDP}_{\text{MP}} + \text{factor Income from abroad} - \text{net Indirect tax ( Indirect tax - subsidy)}$$

$$295 + 3 - (30 - 5)$$

$$295 + 3 - 25$$

$$= 298 - 25 = 273$$

NNP FC= 273 crores

Income method:

$$(5) + (6) + (7) + (8) + (11) + (15)$$

$$170 + 10 + 45 + 20 + 10 + 15$$

$$= 270 (\text{NDP}_{\text{FC}})$$

$$\text{NDP}_{\text{FC}} = \text{NDP}_{\text{FC}} + \text{FIFA}$$

$$= 270 + 3 = 273 \text{ crores}$$

**(7) FROM THE FOLLOWING DATA CALCULATE**

**(a) NATIONAL INCOME (b) PERSONAL DISPOSABLE INCOME.**

1. Profit	500
2. Rent	200
3. Private income	2000
4. Mixed income of self-employed	800
5. Compensation of employers	1000
6. Consumption of fixed capital	100
7. Net factor income from abroad	-(50)
8. Net retained earnings of private employees'	150
9. Interest	250
10. Net exports	200
11. Co-operation	100
12. Net indirect tax	160
13. Direct taxes paid by houses hold's	120
14. Employers contribution to social security scheme.	60

Ans: NNP FC (N. I) = (5) + (9) + (4) + (1) + (2)

$$1000 + 250 + 800 + 500 + 200$$

$$\text{NDP FC} = 2750 \text{ crores}$$

$$\text{NNP FC} = \text{NDP FC} + (7)$$

$$= 2750 + (-50)$$

$$\text{NNP Fc} = 2700 \text{ crores}$$

$$\text{PDI} = (3) - (8) - (11) - (13)$$

$$2000 - 150 - 100 - 120$$

$$\text{PDI} = 2000 - 370 = 1630 \text{ crores}$$

**(8) CALCULATE NATIONAL INCOME AND GROSS NATIONAL DISPOSABLE INCOME FROM THE FOLLOWING DATA.**

Net indirect tax	05
Net domestic fixed capital formation	100
Net exports	(-) 20
Gov.: final consumption expenditure	200
Net current transfer from abroad	15
Private final consumption expenditure	600
Change in stock	10
Net factor from abroad	05
Gross domestic fixed capital formation	125

Ans: National Income ( $NNP_{FC}$ )

$$= (4) + (6) + (2) + (7) + (3) = NDP_{MP}$$

$$= 200 + 600 + 100 + 10 + (-20)$$

$$= 910 - 20 = 890$$

$$NDP_{MP} = 890 \text{ crores}$$

$$NNP_{FC} = NDP_{MP} + (8) - (1)$$

$$= 890 + 5 - 5$$

$$NNP_{FC} = 890$$

$$\text{Depreciation} = (9) - (2)$$

$$125 - 100 = 25 \text{ crores}$$

$$GNDI = NNP_{FC} + \text{Net Indirect Tax} + \text{Net Current transfers from abroad} + \text{depreciation}$$

$$= 890 + 05 + 15 + 25$$

$$GNDI = 935 \text{ crores}$$

**(9) CALCULATE NNP AT MARKET PRICE BY PRODUCTION METHOD AND INCOME METHOD**

	<b>Crores</b>
1. Intermediate consumption	
(a) primary sector	500
(b) Secondary sector	400
(c) tertiary sector	300
2. Value of output of	
(a) primary sector	1,000
(b) Secondary sector	900
(c) tertiary sector	700
3. Rent	10
4. Emoluments of employers	400
5. Mixed income	650
6. Operating surplus	300
7. Net factor income from abroad	-20
8. Interest	05
9. Consumptive of fixed capital	40
10. Net indirect tax	10

Ans:  $NNP_{MP}$  by production method

(2) Value of output – (1) Intermediate conspn = value added at MP

$$(2) a + b + c - (1) a + b + c$$

$$1000 + 900 + 700 - 500 + 400 + 300$$

$$2600 - 1200$$

$$1400 = GDP_{MP}$$

$$\text{NNP}_{\text{MP}} = \text{GDP}_{\text{MP}} - (9) + (7)$$

$$= 1400 - 40 + (-20)$$

$$\text{NNP}_{\text{MP}} = 1340$$

Income Method:

$$\text{NNP}_{\text{MP}} = (4) + (5) + (6) + (10) + (7)$$

$$= 400 + 650 + 300 + 10 + (-20)$$

$$\text{NNP}_{\text{MP}} = 1350 + 10 - 20$$

**(10) CALCULATE GNP at FACTOR COST BY INCOME METHOD AND EXPENDITURE METHOD.**

**Rupees in crores**

1. Private final consumption expenditure	1000
2. Net domestic capital formation	200
3. Profit	400
4. Compensation of employers	800
5. Rent	250
6. Gov.: final consumption expenditure	500
7. Consumption of fixed capital	60
8. Interest	150
9. Net current transfer from row	(-80)
10. Net factor income from abroad	(-10)
11. Net exports	(-20)
12. Net indirect taxes	80

Ans: GNP FC by Income method

$$\text{GNP FC} = 4 + 3 + 5 + 8 + 10 + 7$$

$$800 + 400 + 250 + 150 + (-10) + 60$$

$$\text{GNP FC} = 1650 \text{ crores}$$

GNP FC by Expenditure Method

$$\text{GNP FC} = 1 + 2 + 6 + 10 + 11 - 12 + 7$$

$$= 1000 + 200 + 500 + (-10) + (-20) - 80 + 60$$

$$= 1700 - 110 + 60$$

$$\text{GNP FC} = 1650 \text{ crores}$$

**(11) CALCULATE PRIVATE INCOME AND PERSONAL DISPOSABLE INCOME**

**FROM THE FOLLOWING DATA**

**Rupees in crores**

1. National income	5050
2. Income from property and entrepreneurship to gov. administrative department	500
3. Saving of non-department public enterprises	100
4. Corporation tax	80
5. Current transfer from gov: administrative depart	200
6. Net factor income from abroad	-50
7. Direct personal tax	150
8. Indirect taxes	220
9. Current transfer from Raw	80
10. Saving of private corporate sector	500

Ans: Private Income = 1 - 2 - 3 + 5 + 9  
 $5050 - 500 - 100 + 200 + 80$   
 $5430 - 500$

Private Income = 4930 crores

PDI = Private Income - 4 - 10 - 7  
 $4930 - 80 - 500 - 150$

PDI = 4200 crores

**12) Calculate private income**

1. Income from domestic product accruing to private sector	250
2. Net current transfer from raw	40
3. Net current transfer from govt: administrative dept	10
4. National debt interest	20
5. Net factor income from abroad	05

Ans: Private Income = 1 + 2 + 3 + 4 + 5  
 $250 + 40 + 10 + 20 + 5$   
 $= 325$  crores

**(13) CALCULATE NET NATIONAL DISPOSABLE INCOME AND PERSONAL INCOME FROM THE FOLLOWING DATA**

1. Net indirect taxes	90
2. Compensation of employers	400
3. Personal taxes	100
4. Operating surplus	200
5. Corporation profit tax	80
6. Mixed income of self-employed	500
7. National debt interest	70
8. Saving of non-departmental enterprises	40
9. Current transfer from govt	60
10. Income from property and entrepreneurship to govt administrative Department	30
11. Net current transfer from RAW	20
12. Net factor income from abroad	-50
13. saving of private corporate sector	20

Ans: NDPFC = 2 + 4 + 6  
 $400 + 200 + 500 = 1100$  crores

NNDI = NDP FC + 12 + 1 + 11  
 $= 1100 + (-50) + 90 + 20$   
NNDI = 1210 - 50  
 $= 1160$  crores

**Personal Income**

**Ans:**

Private Income = NDP FC - 8 - 10  
 $1160 - 40 - 30 = 1090$  crores

$1090 + 7 + 9 + 11 + 12$

$1090 + 70 + 60 + 20 + (-50) = 1190$  crores

Personal income = Private Income - Corporation Profit Tax - Savings of private corporate sectors

$1190 - 80 - 20 = 1090$  crores

**(14) CALCULATE FROM THE FOLLOWING DATA (A) PRIVATE INCOME (B) PERSONAL INCOME (C) PERSONAL DISPOSABLE INCOME.**

**RS IN CRORES**

1. Factor income from NDP accruing to private sector	300
2. Income from entrepreneurship and property	
3. Accruing to govt administrative departmental	70
4. Savings of non-departmental enterprises	60
5. Factor income from abroad	20
6. Consumption of fixed capital	35
7. Current transfer from rest of the world	15
8. Corporation taxes	25
9. Factor income to abroad	30
10. Current transfer from govt governmental admi depart	40
11. Direct taxes paid by house hold	20
12. National dept interest	05
13. saving of private corporate sector	80

Ans Private Income = 1 + 5 + 7 - 9 + 10 + 12  
 $300 + 20 + 15 - 30 + 40 + 05$

Private Income = 350 crores

Personal Income = Private income - 8 - 13  
 $= 350 - 25 - 80$

Personal Income = 245 crores

PDI = Personal Income - 11  
 $245 - 20$

PDI = 225 crores

15. **From the following data, calculate:**  
**(a) Gross national Disposable Income**  
**(b) Private Income**  
**(c) Personal Disposable Income**

	(Rs. In Crores)
(1) Net national product at factor cost	700
(2) Indirect taxes	60
(3) Subsidies	10
(4) Consumption of fixed capital	40
(5) Income from property and entrepreneurship Accruing to government administrative departments	50
(6) Current transfers from rest of the world	45
(7) Profits	100
(8) Direct tax paid by households	50
(9) Savings of private corporate sector	60
(10) Saving of non-departmental enterprises	25
(11) Current transfer from govt: administrative departments	70
(12) A factor income abroad	20
(13) Factor income to abroad	30
(14) Corporation tax	35
Ans GNDI = 1 + 2 - 3 + 6 + 4 $700 + 60 - 10 + 45 + 40 = 805 - 10 + 40$ GNDI = 835 crores	
b) Private Income = 1 - 5 - 10 + 6 + 11 $700 - 50 - 25 + 45 + 70$	

Private Income = 740 crores

c) PDI = Private Income – 14 – 9 – 8

740 – 35 – 60 – 50

PDI = 594 crores

16. **Calculate Gross National Disposable Income from the following data:**

(Rs. In Crores)

(1) National income	2000
(2) Net current transfer from rest of the world	200
(3) Consumption of fixed capital	100
(4) Net factor income from abroad	(-)50
(5) Net indirect taxes	250

Ans: GNDI = 1 + 5 + 2 + 3

2000 + 250 + 200 + 100

GNDI = 2550 crores

17. **Calculate Net National Disposable Income from the Following Data:**

(Rs. In Crores)

(1) Gross national product at factor cost	800
(2) Net current transfer from rest of the world	50
(3) Net indirect taxes	70
(4) Consumption of fixed capital	60
(5) Net factor income from abroad	(-)10

Ans: NNDI = 1 + 2 + 3 -4

800 + 50 + 70 -60

= 860 crores

### **NUMERICALS TO BE CALCULATED BY STUDENTS**

1. **Calculate Net National Disposable Income From The Following Data:**

(Rs. In Crores)

(i) Gross domestic product at market price	1,000
(ii) Net factor income from abroad	(-)20
(iii) Net indirect taxes	120
(iv) Consumption of fixed capital	100
(v) Net current transfer from rest of the world	70

2. **Calculate Gross National Disposable Income The Following Data:**

(Rs. In Crores)

(i) National income (or NNPfc)	800
(ii) Net indirect taxes	100
(iii) Net factor income from abroad	30
(iv) Net current transfer from rest of the world	50
(v) Consumption of fixed capital	70

**3. Calculate Gross National Disposable Income And net National Disposable Income from the Following Data:**

(Rs. In Crores)

(i) Consumption of fixed capital	30
(ii) Net national product at market price	240
(iii) Net Indirect taxes	40
(iv) Net current transfers from rest of the world	(-)20
(v) Net factor income from abroad	(-) 10

**4. Find Out  $GNP_{MP}$ ,  $NDP_{FC}$  And Gross National Disposable Income.**

(Rs. In Crores)

(i) National income	520
(ii) Net factor income from abroad	10
(iii) Indirect taxes	40
(iv) Subsidies	10
(v) Consumption of fixed capital	50
(vi) Net current transfer received from abroad	20

**5. Calculate  $NNP_{FC}$ , net National Disposable Income and Gross National Disposable Income from following data:**

(Rs. In Crores)

(i) $GNP_{MP}$	1000
(ii) Net Indirect taxes	100
(iii) Net current transfer received from rest of the world	(-)20
(iv) Subsidies	25
(v) Consumption of fixed capital	50
(vi) Net factor income paid to the rest of the world	(-)10

**6. Find Out (a) Personal Income and (b) Personal Disposable Income from following data:**

(Rs. In Crores)

1. Private income	48,800
(ii) Interest on national debit	1,000
(iii) Net factor income from abroad	300
(iv) Corporate Savings	800
(v) ) Corporation tax	210
(vi) Personal income tax	540

**7. From The Following Data Calculate:**

**Private Income and (b) Personal disposable income.**

(Rs. In Crores)

(i) Income from Domestic product accruing to the private sector	4,000
(ii) Savings of non-departmental public enterprises	200
(iii) Current transfer from government administrative departments	150
(iv) Savings of private corporate sector	400
(v) Current transfers from rest of the world	50
(vi) Net factor income from abroad	(-) 4
(vii) Corporation tax	60
(viii) Direct Personal tax	140

**8. Calculate (a) Personal Income (b) Personal Disposable Income from following data:**

(Rs. In Crores)

(i) Income from property and entrepreneurship accruing to Government administrative department	500
(ii) Savings of non-departmental public enterprises	100
(iii) Corporation tax	80
(iv) Income from Domestic product accruing to the private sector	4,500
(v) Current transfer from government administrative departments	200
(vi) Net factor income from abroad	(-)50
(vii) Direct Personal tax	150
(viii) Indirect taxes	220
(ix) Current transfers from rest of the world	80
(x) Savings of private cooperative scooter	500

**9. From the following data calculate National Income by**

**(i) Income method and (ii) Expenditure method.**

(Rs. In Crores)

(i) Compensation of employees	1,200
(ii) Net factor income from abroad	(-)20
(iii) Net indirect taxes	120
(iv) Profit	800
(v) Private final consumption expenditure	2,000
(vi) Net domestic capital formation	770
(vii) Consumption of fixed capital	130
(viii) Rent	400
(ix) Interest	620
(x) Mixed income of self- employed	700
(xi) Net exports	(-)30
(xii) Government final consumption expenditure	1,100

**10. From the following data, calculate Gross national product at Market Price by**

**(i) Income method. (ii) Expenditure method:**

(Rs. In Crores)

(i) Mixed income of self-employed	400
(ii) Compensation of employees	500
(iii) Private final consumption expenditure	900
(iv) Net factor income from abroad	(-)20
(v) Net indirect taxes	100
(vi) Consumption of fixed capital	120
(vii) Net domestic capital formation	280
(viii) Net exports	(-)30
(ix) Profits	350
(x) Rent	100
(xi) Interest	150
(xii) Government final consumption expenditure	450

**11. Calculate (a) National Income and (b) Gross National Disposable Income from the following data**

	(Rs. In Crores)
(i) Net factor income from abroad	(-)20
(ii) Government final consumption expenditure	200
(iii) Subsidies	10
(iv) Private final consumption expenditure	800
(v) Net current transfers from the rest of the world	30
(vi) Net domestic fixed capital formation	100
(vii) Indirect taxes	80
(viii) Consumption of fixed capital	40
(ix) Change in stock	(-)10
(x) Net exports	(-)50

**12. From the following data, calculate 'gross value added at factor cost'**

	(Rs. In Crores)
(i) Sales	500
(ii) Change in stock	30
(iii) Subsidies	40
(iv) Consumption of fixed capital	60
(v) Purchases of intermediate products	350
(vi) Profit	70

**13. From the following data, calculate:**

**(a) National income, and (b) Personal disposable income**

	(Rs. In Crores)
(i) Compensation of employees	1,200'
(ii) Rent	400
(iii) Profit	800
(iv) Consumption of fixed capital	300
(v) Mixed income of self- employed	1,000
(vi) private income	3,600
(vii) net factor income from abroad	(-)50
(viii) net trained earnings of private enterprises	200
(ix) interest	250
(x) net indirect taxes	350
(xi) net exports	(-)60
(xii) direct taxes paid by households	150
(xiii) corporation tax	100

**14. From the following data calculate national income by**

**(a) Income method and (b) Expenditure method.**

	(Rs. In cores)
(i) Private final consumption expenditure	2,000
(ii) Net capital formation	400
(iii) Change in stock	50
(iv) Compensation of employees	1,900
(v) Rent	200

(vi) Interest	150
(vii) operating surplus	720
(viii) Net indirect tax	400
(x) Employers' contribution to social security schemes	100
(xi) Net exports	20
(xii) Net factor income from aboard	(-)20
(xii) Government final consumption expenditure	600
(xvi) Consumption of fixed capital	100

**15.** Find gross national product at market price by income method and expenditure method.

	<b>ITEMS</b>	<b>Rs. CRORES</b>
a.	Mixed income of the self-employed	400
b.	Compensation of employees	500
c.	Private final consumption expenditure	900
d.	Net factor income from abroad	(--)-20
e.	Net indirect taxes	100
f.	Consumption of fixed capital	120
g.	Net domestic capital formation	280
h.	Net exports	(--)-30
i.	Rent	100
j.	Interest	150
k.	Government final consumption expenditure	450