

without deducting depreciation

⑥ Gross

Focus on Domestic Territory (India) i.e. economic activity done in India either by

- Indian

or

- Foreigner

⑦ Domestic

Final Economic

= Goods produced or services rendered by citizen

(National Person)

⑧ Product

[GDP]

& Companies (Artificial Person)

Factor Cost

X Value

+ Indirect Tax

- (-) subsidy or

Net

+ Indirect Tax

Market Price

calculated at

Base Year Price

↓

Real GDP

↓

Per Capita Income

Real GDP

$\div$ Total Population

Current Year Price

↓

Nominal GDP

* GDP Deflator (GD) or Price Index

$$G.D = \frac{\text{Nominal GDP (NG)}}{\text{Real GDP (RG)}} \times 100$$

$$N.G = \frac{R.G \times G.D}{100}$$

$$R.G = \frac{N.G}{G.D} \times 100$$

* Inflation Rate:-

$$IR = \frac{\Delta \text{ in GD}}{\text{GD Yr 1}} \times 100$$

or

$$= \frac{\text{GD Yr 2} - \text{GD Yr 1}}{\text{GD Yr 1}} \times 100$$

$$GDP_{FC} \neq NIT = GDP_{MP}$$

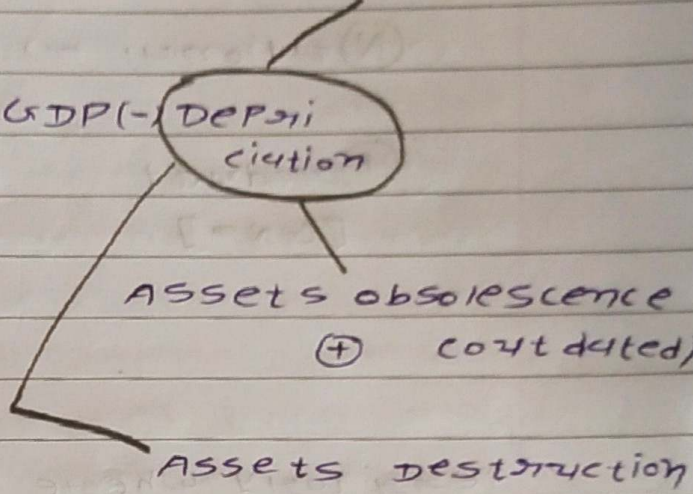
$$GDP_{MP} - NIT = GDP_{FC}$$

after deducting depreciation
 (Net)

consumption of capital for producing goods and rendering services

Focus on Domestic Territory [India]
 i.e economic activity (P) product done in india
 either by [NDP]

- Indian or
- foreigner



$$GDP - D = NDP$$

$$NDP + D = GDP$$

$$\text{Market Price} = \text{factor cost} + \underbrace{\text{indirect tax} - \text{subsidies}}_{\text{Tax}}$$

$$\text{Net indirect Tax} = \text{indirect tax} - \text{subsidies}$$

$$\text{Market Price} = \text{factor cost} + \text{Net indirect Tax}$$

(G) without deducting depreciation

(N)ational → focus is on National i.e. Indian
i.e. economic activity done by

(P)roduct Indian National either in:

[GNP]

- Indian

or

- foreign

Territory where economic activity
is done

National Who dit

GNP → India

GNP → India

To involve calculate
NP from DP

Domestic Product [GDP - NDP]

+ [Factor Income accruing to Indian working
in foreign]

(-) [Factor Income accruing to foreigners working
in India]

Net Factor
Income

National Product [GNP or NNP]

$$DP + NFIA = NP$$

$$GDP + NFIA = GNP$$

$$NDP + NFIA = NNP$$

$$NP - NFIA = DP$$

$$GNP - NFIA = GDP$$

$$NNP - NFIA = NDP$$

1	2	3	4 = 2 - 3	5 = 1 + 4
DP	[]	{ }	NFIA	NP
10,000	2,000	300	700	10,700

If NFIA + then / $NP > DP$

10,000	300	2,000	(700)	9,300
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If NFIA - then / $DP > NP$.

Net ----- after deducting depreciation

① National → focus is on National i.e. Indian i.e. economic activity done by Indian National either in:

② Product [NNP]

- Indian

- foreign

$$GDP + NFIA = GNP$$

$$- D$$

$$NDP + NFIA = NNP$$

$$GNP - Depreciation = NNP$$

$$NDP + NFIA = NNP$$

$$GDP + NFIA - Depreciation = NNP$$

* GDP_{MP} in Expenditure Method

$$GDP_{MP} = C + I + G + NX$$

Private final consumption Exp.

GDCF

Govt final consum. Expⁿ

$$Net\ Export = Export - import$$

$$①\ NDCF + Dep =$$

① Household Expⁿ

$$②\ GFCF + \Delta stock =$$

Goods purchase

② Non-profit Expⁿ

$\Delta stock$



Inventory invest.

Grossing stock = GP stock

$$⑤\ GFCF + \Delta stock + Net\ Acquisition\ of\ fixed\ capital$$

Net Expⁿ = Net imp. = 20
Net Exp = 20

concept of factor cost

Operating
varies

- Rent on Land
- + Interest on Capital
- + Profit to Entrepreneur

Operating Surplus

COE
com. of
Employees

- + wages / compensation to Labour / Employees

factor cost of employed factor
+ mixed Income of self Employed

National
income
↑

$$\text{factor cost} = \text{NDP}_{FC} + \text{NFIA} = \text{NNP}_{FC} + \text{D}$$

$$\text{GDP}_{FC} + \text{NFIA} = \text{GNP}_{FC} + \text{NIT}$$

$$\text{GDP}_{MP} + \text{NFIA} = \text{GNP}_{MP} - \text{D}$$

$$\text{NDP}_{MP} + \text{NFIA} = \text{NNP}_{MP}$$

National income ને ગણવાની ત્રણ પદ્ધતિ

1. Income

2. Expenditure

3. Value Added Method

1. income Method ની સીધી પદ્ધતિ NDP_{FC} જોઈએ

2. Expenditure method ની સીધી પદ્ધતિ GDP_{MP} જોઈએ

3. Value added

A Concept of Personal Income

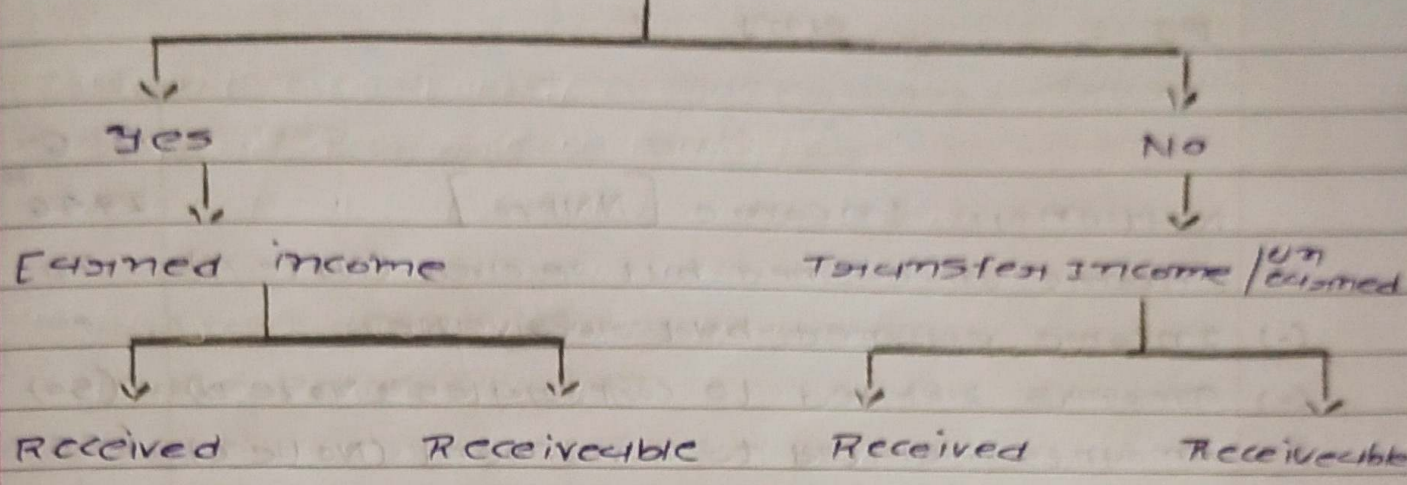
* Transfer Payment's

- i) This is the amount which is generally received by household from government.
- ii) Generally this is received even if an economic activity is not done by a household.
- iii) Examples: If this includes transfer payments such as Social Security Benefits, unemployment compensation, Welfare Payment etc.

* Personal income:

- i) It is income received by following:
household, Non Profit institution, Leaving household (like NGO)
- ii) It includes all types of incomes which are received that is income receivable is not include from here it is excluded from here
- iii) It includes Both earned income and unearned income (Transfer payment)

iv) Income earned by doing an economic Activity



National Income	✓	✓	×	×
Personal Income	✓	×	✓	×

* Personal income

National income

- (-) Income from Property & Entrepreneurship according to Govt. Administrative departments
- (-) Saving of non-dept. enterprises
- (-) saving of private corporate sector
- (-) Corporate Profit Tax
- + National debt interest
- + Current Transfers from Govt.
- + Current Transfers from rest of the world.

Personal income

- * Direct Tax
- * Non Tax Payments to Govt. (Fees...)
- Disposable income

$$NI = NNPFc = \text{Earned Income} = R + \text{Receivable}$$

$$PI = \text{any } I$$

	I-6	I-8
National Income [NNPFc]	1746 ^{HH}	14,35
+ Income un-earned but received (Note A)	70	260
(-) Income earned but receivable	-	-
(-) Amounts related to corporates (Note B)	(50)	(327)
(-) Amounts related to government (Note C)	(55)	(250)
Personal Income	1711	14,763
(-) Direct Tax	-	(100)
(-) Non-Tax Payments to Govt.		
Disposable Income		14,663

Note: A

- Transfer Payment to HH from Govt.
- + Transfer Payment to HH from Govt.
- + Private Donation from abroad
- + Interest on National Debt
- + Interest received by HH
- Interest payable by HH

Note: B

- Corporate Tax
- + Retained Earnings /
- Reserves & surplus / un-distributed
- income / savings from corporate sector

Note: C

Income accruing to government from
 Entrepreneurship & Profits
 i.e. domestic product

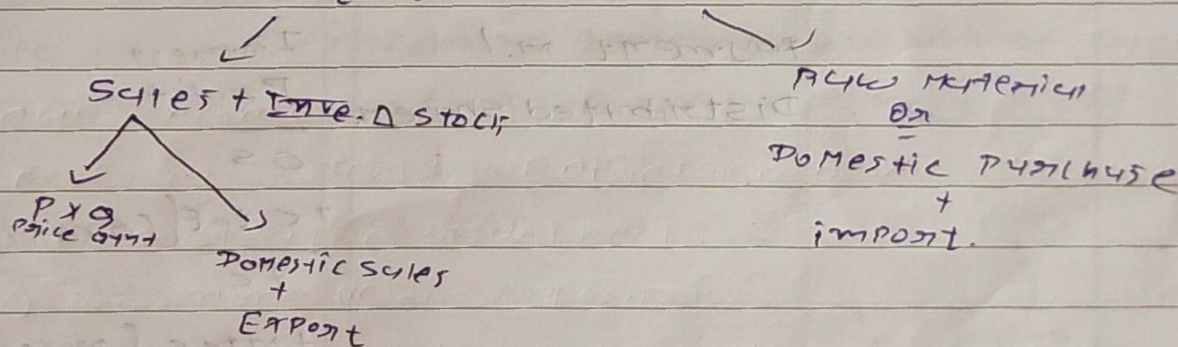
+ savings non-departmental
 Enterprise

★ Value Added Method in National Income.

Value Added

$$\sum GVA_{MP} = GDP_{MP}$$

$$GDP_{MP} = GVA_{MP} = \text{Value of Output} - \text{Intermediate cost}$$



Phase of circulation flow of Income	Method	Calculation
Output	Value added M./ product M./ Net output M./ industrial origin M.	$ \begin{aligned} & \text{Sales} \\ & + \text{closing stock} \quad \Delta \text{ in Stock} \\ & - \text{opening stock} \\ & \text{Value added} \\ & - \text{Intermediate purchase} \\ & \text{GROSS VALUE ADDED} \\ & \text{GDPMP} \end{aligned} $
Income	Factor Income M./ Payment M./ Distributed share M.	$ \begin{aligned} & \text{Rent} \\ & \text{Interest} \\ & \text{Profit} \\ & \text{OS} \\ & + \text{C to E} \left[\text{Consumption of Employees} \right] \\ & \text{FC} \\ & + \text{MISE} \left[\text{Mixed income of self-employed} \right] \\ & \text{NDP}_{fc} \end{aligned} $
Expenditure	Expenditure M./ Income Disposed M.	$ \begin{aligned} & \text{final consumption Ex. of CA} \\ & \quad \text{Private sector} \\ & + \text{final consumption Ex. of Public sector (Note B)} \\ & + \text{GROSS DOMESTIC CAPITAL FORMATION (Note C)} \\ & + \text{Net Exports (Export - Import)} \\ & \text{Total Expenditure} = \text{GDPMP} \end{aligned} $

Calculation
NI [NNP_{fc}]

Data
Required

What is
measured

GDP_{MP}

- D

NDP_{MP}

+ NFIA

NNP_{MP}

- NI_T

NNP_{fc}

The sum of net contribution of values added by all production units the producing enterprise of the country

NDP_{fc}

+ NFIA

NNP_{fc}

Total factor Relative contribution of factor incomes generated by factor in the production owners of goods and services

GDP_{MP}

- D

NDP_{MP}

+ NFIA

NNP_{MP}

- NI_T

NNP_{fc}

Sum of expenditure Flow of consum- es of the three ption and spending units in investment the economy, namely expenditures government, consumer households, and producing enter- prises

Unit-2

The Keynesian theory of determination of national income

⇒ 2 Sector Model :-

Equilibrium

ex ante / anticipated demand

$$\text{Expenditure} = \dots \text{SUPPLY / Income}$$

Demand for

Demand for

consumers

⊕ Investment

= consumption

G. by H.H

G. by Bf

Savings

$$C + I$$

$$= C + S$$

$$C + I = C + S$$

Marg

⊛ Marginal Propensity to consume [MPC]

→ It defines the relationship between Δ in C & Δ in Y

→ It is Δ in C due to Δ in Y

$$MPC = \frac{\Delta C}{\Delta Y}$$

(*) ⇒ Average Propensity to consume [APC]

- ⇒ It defines the relationship between y & C
- ⇒ It is ratio of Total C to total y

$$APC = \frac{\text{Total consumption}}{\text{Total income}} = \frac{C}{y}$$

(*) ⇒ Marginal Propensity to savings : [MPS]

- ⇒ It defines the relationship between Δy & $\Delta \text{in } S$
- ⇒ It is $\Delta \text{in } S$ due to $\Delta \text{in } y$

$$MPS = \frac{\Delta S}{\Delta y}$$

(*) ⇒ Average Propensity to savings : [APS]

- ⇒ It defines the relationship between y & S
- ⇒ It is ratio of total S to total y

$$APS = \frac{\text{Total savings}}{\text{Total income}} = \frac{S}{y}$$

$$APC + APS = 1$$

$$MPC + MPS = 1$$

Ex. Post - actual



At present

=> consumption function [C] :

Total consumption

= consumption

not proportionate to income

consumption

proportionate to income

= autonomous consumption

+ proportionate consumption

= 4

+

γ_d

· b

MPC

disposable income

here $\gamma_d = \gamma$

∴ no govt.

∴ no tax

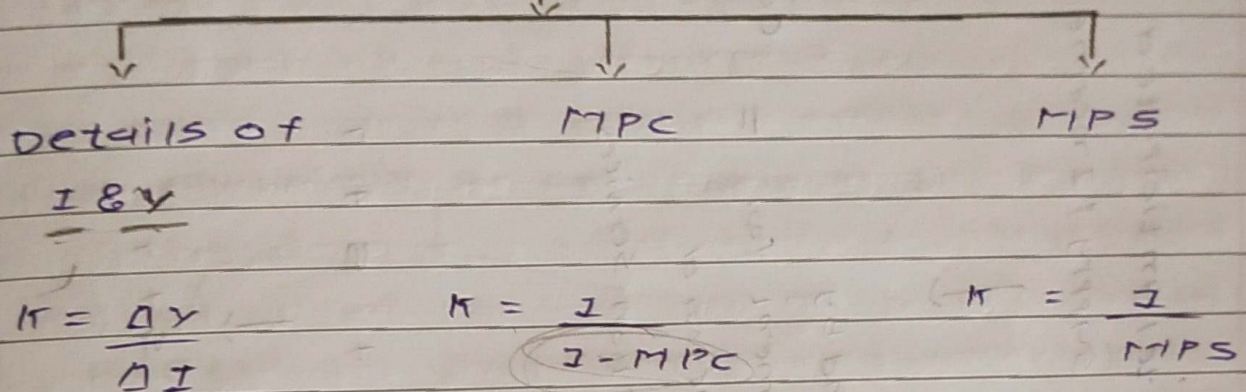
γ	4	$\gamma \cdot b$	C	S	$\frac{\Delta C}{\Delta \gamma}$ MPC	MPC	C/γ APC	S/γ APC
0	50	0	50	-50	-	-	-	-
100	50	75 (100 × 0.75)	125	-25	75/100 = 0.75	-	1.25	-
200	50	150 (200 × 0.75)	200	0	0.75	-	1	-
300	50	225 (300 × 0.75)	275	25	0.75	0.25	0.92	0.08

* Investment Multiplier

=> It has ripple (vast multiplying) impact on Y .

=> Formula :-

In question given is



$$\Delta Y = \Delta I \cdot K$$

$$C = a + \gamma \cdot b$$

$$\gamma = C + I$$

$$b = \frac{\Delta C}{\Delta Y}$$

$$S = -a + \underbrace{(1-b)}_{MPS} \gamma$$

$\downarrow$
 savings

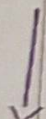
(future)
Expected

Ex-ante / anticipated
Demand / expenditure



Demand for
Consumption
α. by HH

+ Demand for
Investment
α. by BF



$$C + I + G$$



$$C + I + G$$

$$I + G$$

= Ex-ante / anticipated
Supply / Income



Demand by
Government for
α & Factor of
Production Services

= Consumption +
Savings + Tax

$$= C + S + T$$



$$C + S + T$$

=

$$S + T$$

⇒

3 sector model

Income needed for consumption

$$\text{Disposable Income} = \text{Income} - \text{Tax} + \text{Transfer Receipt}$$

$$Y_d = Y - T + TR$$

$$Y_d = Y - [\bar{T} + Y \cdot t] + TR$$

$$Y_d = Y - \bar{T} - Y \cdot t + TR$$

Inv. Multiplier $\frac{1}{1-b}$ Tax Multiplier $\frac{-1}{1-b(1-t)}$

PT(t)
not given

PT(t)
given

$$K = \frac{1}{1-b}$$

$$K = \frac{1}{1-b(1-t)}$$

* Total function [T]

Total Tax = Tax not Proportionate to Income + Tax Proportionate to Income

$$= \text{Lumpsum Tax} + \text{Proportionate Tax}$$

E.g. GST i.e. IDT E.g. DT

$$T = \bar{T} + Y \cdot t$$

Income

Tax rate

* Concept of circular flow of Income and Sector models

1). Concept of circular flow

The circular flow model demonstrates how money moves through society. Money flow from Producers to workers as wages and flows back to Producers as Payment for Product. In short, an economy is an endless circular flow of money. That is the basis form of the model, but actual money flows are more complicated. Economists have added in more factors to better ^{shows} depict complex modern economies. These factors are the components of a nation's GDP or national income, for that reason, the model is also referred to as the circular ^{to} as the circular flow of income model.

2). Two Sector model

The basic purpose of the circular flow model is to understand how money moves within an economy. it breaks the economy down into two primary players: households and corporations. it separates the markets that these participants operate is as market for goods and services and the market for the factors of production.

3). Three Sector model

- =) Aggregate demand in the three sector model of closed economy (neglecting foreign trade) consists of three components namely, household consumption (C), desired business investment demand (I) and the government sector's demand for goods and services (G).
- =) Since there is no foreign sector, GDP and national income are equal.
- =) Each of the variables in the model is a flow variable.
- =) There are two flows out of the household sector in addition to consumption expenditure namely, saving flow and the flow of tax payments to the governments.
- =) The three sector Keynesian model is commonly constructed assuming that government purchases are autonomous, i.e., fixed.

4). Four Sector model

- => The four sector model include all four macro economics sectors. the household sector, the business sector the governments sector, and the foreign sector. The foreign sector includes households, business, and governments that reside in other countries.
- => In the four sectors model, there are three additional flows namely: exports, imports and net capital inflow.
- => The domestic economy trade goods with the foreign sector through exports and imports. Exports are the injections in the National income, while imports act as leakages or outflows of National income. Exports represent foreign demand for domestic output and therefore are part of aggregate demand. Since imports are not demand for goods, we must subtract them from aggregate demand.

⇒ Equilibrium in 4 sector model

ex ante / anticipated Demand / Expenditure = ex ante / anticipated supply

Demand for Consumer or by H.H + Demand for Investment or by B.f + Demand by Government for or by factor of production services + Net foreign Trade / Net Exports = Consumption + Savings + Tax + X
 [Export - Import]

$$C + I + G + (X - M) = C + S + T$$

$$C + I + G + (X - M) = C + S + T$$

$$I + G + (X - M) = S + T$$

* Summary *

	2sm	3sm	4sm
Demand for Consumer ex. by HH	✓	✓	✓
Demand for Investment ex. by BF	✓	✓	✓
Demand by Government for ex & fin. services	x	✓	✓
Foreign Trade / Net Exports [ex - import]	x	x	✓
Type of economy situation	closed Myth	closed Reality	open Reality
Autonomous consumption (a)	✓	✓	✓
Proportional consumption [$y_d \cdot b$] / $\times$ $\swarrow$ MPC	✓	✓	✓
Disposable income			
consumption function [c] $c = a + y_d \cdot b$	✓	✓	✓
Average propensity to consume $= APC = \frac{c}{y}$			
Marginal propensity to consume $= MPC = b = \frac{\Delta c}{\Delta y} = 1 - mps$	✓	✓	✓

Average Propensity to Save = APS = S/Y			
Marginal Propensity to Consume = MPS = $\frac{\Delta S}{\Delta Y} = 1 - MPC$			
Ex ante demand / Expenditure	$C + I$	$C + I + G$	$(C + I + G + (X - M))$
Ex ante supply / Income	$C + S$	$C + S + T$	$C + S + T$
Equilibrium Income (Y)	$Y = C + S$	$Y = C + I + G$	$Y = (C + I + G + (X - M))$
Equilibrium Position	$I = S$	$I + G = S + T$	$I + G + (X - M) = S + T$
Investment Multiplier (K) - x - x - x - x - x - x - x - x			
without tax rate (t)	$K = \frac{1}{1 - b}$	$K = \frac{1}{1 - b}$	$K = \frac{1}{1 - b + m}$
with tax rate	X	$K = \frac{1}{1 - b(1 - t)}$	$K = \frac{1}{1 - b(1 - t) + m}$ (also known as foreign Trade Multiplier)
$K = \frac{\Delta Y}{\Delta I}$			
Tax Function [T] - x - x - x - x - x - x - x - x			
$T = \bar{T} + Y \cdot t$ Lumpsum Tax Income Tax rate	X	✓	✓

DISPOSABLE Income [PK]	$Y_d = Y$ ∴ no tax	$Y_d = Y - T + TR$ - Tax paid received $= Y - (\bar{T} + Y \cdot t) + TR$ $= Y - \bar{T} - Y \cdot t + TR$
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Import function (M)
 - x - x - x - x - x - x - x -

$$M = \bar{M} + Y \cdot m$$

Autonomous Income
 imports

X X ✓

Marginal Propensity
 to import (m)

X X $m = \frac{\Delta M}{\Delta Y}$