CHAPTER 1	Determination of National Income

This Chapter Covers : Study's Chapter: 1

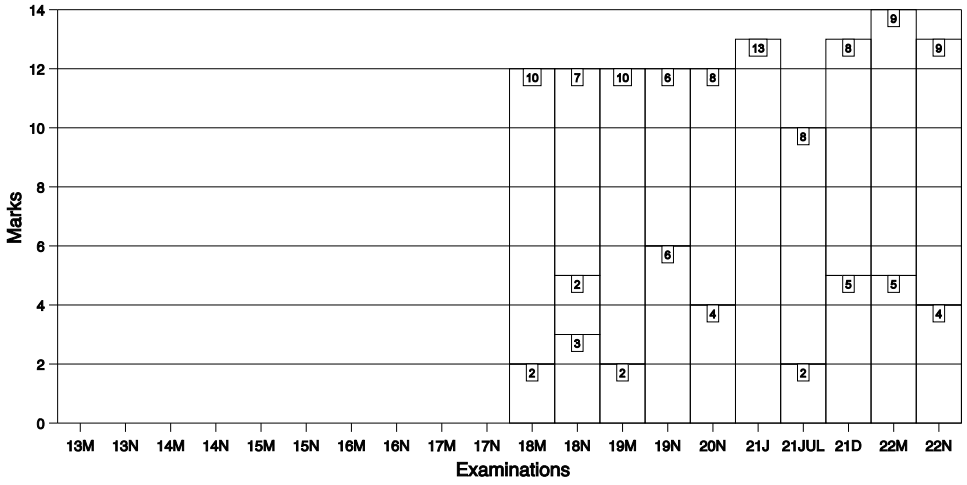
Chapter Comprises: ☞ *Circular Flow in a Simple Two-Sector Model* ☞ *The Aggregate Demand Function: Two-sector Model* ☞ *The Two-Sector Model of National Income Determination* ☞ *The Investment Multiplier* ☞ *Determination of Equilibrium Income: Three Sector Model, Four Sector Model.*

THE GRAPH . . . . . ***Trend Analysis***

Marks of Objective, Short Notes, Distinguish Between, Descriptive & Practical Questions

Legend

☐ Objective ☐ Short Notes ☐ Distinguish ☐ Descriptive ☐ Practical



TIME MANAGER	..... ***Plan and Manage your Time***							
Time	***First In-depth learning***	***Instant Revision (in hours)***		***Periodic Revision (in hours)***				
	i.e..... ..... Day 1	Next day i.e.... ..... Day 2	After 7 days i.e. on ..... Day 8	After 30 days i.e. on ..... Day 30	After 60 days i.e. on ..... Day 60	After 90 days i.e. on ..... Day 90	Fix as per your need.	
1. Budgeted	16	4	3.12	2.2	1.35	1.35		
2. Actual								
3. Variance (1-2)								

QUICK LOOK	..... ***Weightage Analysis***	
Repeatedly Asked Questions	**Common Answered Questions**	**Must Try Question**
	1.4.1	1.3.13 1.3.15 1.4.1, 1.5.9 2.1.1, 2.2.9, 2.2.11, 2.2.13, 2.6.4

Unit I *National Income Accounting*

1.1 *Introduction*

Q.1.1.1	RTP	Descriptive
What is National Income? How is it defined?		

Answer:

Meaning of National Income:

The gross money value of final goods and domestic territory of the country is called gross domestic product or income. If depreciation is subtracted from gross domestic income, we get net domestic income. Besides, domestic income there is net factor income earned from abroad. If net factor income earned from abroad is added to domestic income, we get national income.

National income may be defined as follows:

National income is the net money value of all final goods and service that are produced in a country in a year plus net factor income received from abroad. This national income is also distributed as factor income (wages, salary, rent, interest, profit etc.) among the factors of production. Therefore, national income may also be estimated by adding up all the factors of income.

Factors of production spend their factor incomes on final goods and services. In this way, national income can also be obtained by adding up all the final expenditures.

Therefore, in short,

national income is either the net value of all final goods and service.

- Or the sum total of all factor incomes.
- Or the sum total of final expenditures.

Thus, there are 3 ways of expressing National Income

1. **NI = $\sum$PG**
   Where $\sum$PG = sum total of market value of the final goods and services produced.
2. **NI = $\sum$FY**
   Where $\sum$FY = sum total of factor income.
3. **NI = C + 1**
   Where C + 1 = sum total of expenditure on the final goods and services produced.

Space to write important points for revision

1.2 *Usefulness and Significance of National Income Estimates*

Q.1.2.1	Practice Question	Short Notes
Write a short note on: National Income as an indicator of economic welfare.		

Answer:

National Income as an indicator of economic welfare

The increase in National Income does not necessarily mean an increase in welfare of the people.

The reasons are as follows:

1. **Unequal distribution of Gross National Product (GNP):** Although there may be rise in GNP but if the distribution is not equal or even, this rise in GNP will not help in raising welfare of people.
2. **Composition of growth:** If the composition of growth consist of defence equipment and socially under arable product like smack, brown sugar etc. it will not help in raising the welfare of the people.
3. **Growth rate of population:** If the rate of growth of population is more than the rate of growth of GNP then the growth of GNP will not rise the welfare of the people.
4. **Inflation:** If the GNP rises due to rise in general price level without any increase in actual production of goods and services, it will not raise the welfare of the people.
5. **Industrialisation:** If National Income of a country rises due to fast industrialisation, the welfare of the common people falls as industrialisation gives rise to pollution, the greatest every of welfare.

Space to write important points for revision

1.3 *Different Concepts of National Income Estimates*

Q.1.3.1	2018 - Nov [7] {C} (b)	Descriptive
Explain the Concept of Gross National Product at market price (GNP_{mp}). (2 marks)		

Answer:

Gross National Product (GNP) is a measure of the market value of all final economic goods and services, gross of depreciation, produced within the domestic territory of a country, by normal residents during an accounting year including net factor incomes from abroad. Gross National Product (GNP) is evaluated at market prices and therefore it is in fact Gross National Product at market prices (GNP_{MP}).

$GNP_{MP} = GDP_{MP}$ + Net factor Income from Abroad.

NFIA is the difference between factor income Earned by our residents from the rest of the world and factor income earned by our residents within our country.

Thus, NFIA = Factor Income earned by our resident from abroad - Factor income earned by non-residents within our country.

Space to write important points for revision

Q.1.3.2	2018 - Nov [11] (b) (i)	Distinguish
Distinguish between Personal Income and Disposable Personal Income. (3 marks)		

Answer:

Difference between Personal Income and Personal Disposable Income

	Personal Income	Disposable Income
1.	Personal income is a measure of actual current income receipts of persons from all sources which may or may not	Disposable personal income is a measure of amount of the money in the hands of the individuals that is available for their consumption or

	be earned from productive activities during a given period of time. In other words, it is the income 'actually paid out' to the household sector but not necessarily earned.	savings. Disposable personal income is derived from personal income by subtracting the direct taxes paid by individuals and other compulsory payments made to the government. DI = PI – Personal Income Taxes
2.	It is a broader concept as it includes direct taxes and fines and fees of Govt. administration.	It is a narrow concept and does not include both direct taxes and miscellaneous Govt. receipts.
3.	Whole of this income cannot be disposed of upon consumption and savings.	It can be disposed of upon consumption expenditure and savings.
4.	It includes direct taxes, income tax, wealth tax, etc.	It does not include such taxes.

Space to write important points for revision

Q.1.3.3	**2019 - Nov [7] {C} (a)**	**Practical**
Compute the amount of subsidies from the following data:		
GDP at market price (₹ in crores)		7,79,567
Indirect Taxes (₹ in crores)		4,54,367
GDP at factor cost (₹ in crores)		3,60,815

(3 marks)

Answer:

Gross Domestic Product at Factor cost (GDP_{FC})

= Gross Domestic Product at Market Price (GDP_{MP}) – Indirect Taxes + Subsidies

₹ 3,60,815 Cr. = ₹ 7,79,567 Cr. – ₹ 4,54,367 + subsidies

₹ 3,60,815 Cr. = ₹ 3,25,200 Cr. + subsidies

∴ Subsidies = ₹ 35,615 Cr.

Space to write important points for revision

Q.1.3.4	2020 - Nov [7] {C} (a)	Practical

Compute the amount of depreciation from the following data:

	(₹ in Crores)
GDP at Market Price (GDP_{MP})	876532
Net factor income from abroad	(–) 232
Aggregate amount of Indirect Taxes	564
Subsidies	30
National Income (NNP_{FC})	846576

(3 marks)

Answer:

Computation of Depreciation:

(₹ in crores)

$NNP_{(FC)} = GDP_{(FC)}$ – Depreciation + NFA/NFIA

8,46,576 = [8,76,532 – 564 + 30] Depreciation – 232

8,46,576 = 8,75,998 – Depreciation – 232

∴ Depreciation = 29,190 Gross

Alternate Answer:

The amount of depreciation:

$GDP_{MP} = NNP_{FC}$ – NFIA + NIT + Depreciation

8,76,532 = 8,46,576 – (– 232) + (564 – 30) + Depreciation

8,76,532 = 8,46,576 + 232 +534 +Depreciation

8,76,532 = 8,47,342 + Depreciation

8,76,532 – 8,47,342 = 29,190 = Depreciation

Depreciation = 29,190 crores.

Space to write important points for revision

Q.1.3.5	2020 - Nov [10] (a) (ii)	Descriptive

Which method is used in India for measurement of National Income? Also, state the method which is considered the most suitable for measurement of National Income of the developed economies. (2 marks)

Answer:

In India a combination of income method, expenditure method and value added method/output method is used for measurement of National Income.

The value-added method is used largely in the commodity producing sectors like agriculture and manufacturing.

In small scale sector net value added is estimated by the income method.

In the construction sector net value added is estimated by the expenditure method.

Method suitable for measurement of National Income of developed Economies:

Income method may be most suitable for developed economies where data in respect of factor income are readily availably. However with the growing facility in the use of the commodity flow method of estimating expenditures, an increasing proportion of the national income is being estimated by expenditure method.

Space to write important points for revision

Q.1.3.6	**2021 - Jan [9] (a) (i)**	**Practical**
Compute GDP at market price and Mixed Income of Self-Employed from the data given below: **(₹ in Crores)**		
Compensation of Employees		810
Depreciation		26
Rent, Interest and Profit		453
NDP at factor cost		1450
Subsidies		18
Net factor Income from Abroad		(-)17
Indirect taxes.		57
		(3 marks)

Answer:

GDP at Factor Cost: NDP at Factor Cost + Depreciation = 1450cr + 26cr = 1476 Cr

GDP at Market Price = GDP at Factor Cost + Net Indirect Taxes
= 1476cr + Indirect Taxes – Subsidies
= 1476cr + 39 cr
= 1515 Cr

NNP at Factor Cost = NDP at Factor cost + Net Factor Income from Abroad

NNP at Factor Cost = Compensation of employees + Operating Surplus + Mixed Income of Self Employed + Net Factor Income from Abroad

Mixed Income of Self Employed = 1450cr – 1263 cr = 187 cr

Space to write important points for revision

Q.1.3.7	2021 - July [7] {C} (a)	Descriptive

Explain the measurement of Net Domestic Product at market price. (2 marks)

Answer:

Net domestic product at market prices (NDP_{MP}) is a measure of the market value of all final economic goods and services, produced within the domestic territory of a country by its normal residents and non-residents during an accounting year less depreciation. The portion of the capital stock used up in the process of production or depreciation must be substracted from final sales because depreciation represents capital consumption and therefore a cost of production.

$NDP_{MP} = GDP_{MP}$ -Depreciation

$NDP_{MP} = NNP_{MP}$ - Net Factor Income from Abroad

The basis of distinction between 'gross' and 'net' is depreciation or consumption of fixed capital.

Gross = Net + Depreciation

Net = Gross - Depreciation

Space to write important points for revision

Q.1.3.8	2021 - Dec [7] {C} (b)	Practical

The Nominal GDP and Real GDP of a country in the financial year 2018-19 were ₹ 1,500 crore and ₹ 1,200 crore respectively, you are required to calculate:

(i) GDP deflator in the financial year 2018-19 and comment.

(ii) Inflation rate in the financial year 2019-20 assuming GDP deflator rate in this year is 140 as compared to the year 2018-19.(3 marks)

Answer:

(i) GDP Deflator = $\frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$

$= \frac{1,500}{1200} \times 100$

$= \boxed{125}$

Comment: The price level has increased since GDP deflator is greater than 100 at 125.

(ii) Inflation Rate = $\frac{140 - 125}{125} \times 100$

$= \boxed{12\%}$

Space to write important points for revision

Q.1.3.9	2021 - Dec [8] (a)	Practical

The following information is related to an economy:

Particulars	Amount in (₹) crore
Domestic Sales	3600
Opening Stock	800
Exports	1000
Depreciation	300

Closing Stock	200
Net indirect tax	400
Intermediate consumption	600
Net factor income from abroad	10

Calculate the followings :

(i) Gross Value of Output (GVO_{MP})
(ii) Gross Value Added (GVA_{MP})
(iii) Net Value Added (NVA_{MP})
(iv) Net Domestic Product (NDP_{FC})
(v) Net National Product (NNP_{FC}) (5 marks)

Answer:

(i) GVO_{MP} = Sales (Domestic + Exports) + change in stock
= 4600 (3600 + 1000) + (200 - 800)
= 4000 crores

(ii) GVA_{MP} = Value of output (-) intermediate consumption.
= 4,000 - 600
= 3,400 crores

(iii) NVA_{MP} = GVA_{MP} (-) Depreciation
= 3,400 (-) 300
= 3100 crores

(iv) NDP_{FC} = NVA_{MP} (-) Net Indirect Tax
= 3100 (-) 400
= 2700 crores

(v) NNP_{FC} = NDP_{FC} + NFIA
= 2700 + 10
= 2710 crores

Space to write important points for revision

Q.1.3.10	**2022 - May [7] {C} (a)**	**Practical**

Following information, relating to a particular financial year, are given as under:

	₹ in Crores
Sales	3,500
Intermediate consumption	400
Closing Stock	300
Opening Stock	200
Net indirect tax	600
Mixed income	200
Consumption of fixed capital	400
Compensation of employees	400

Compute:
(i) GVA_{MP}
(ii) NDP_{MP}
(iii) Operating Surplus (3 marks)

Answer:

(i) GVA_{MP} = Gross value Output $_{MP}$ - Intermediate consumption
= (Sales + Change in Stock) - Intermediate Consumption
= 3500+[300 - 200] - 400
GVA_{MP} = ₹ 3200 Crores.

(ii) $GDP_{MP} = GVA_{MP}$ = ₹ 3200 Crores
$NDP_{MP} = GDP_{MP}$ - consumptions of fixed capital
= 3200 - 400
NDP_{MP} = ₹ 2800 crores

(iii) $NDP_{FC} = NDP_{MP}$ - Net Indirect Tax
= 2800 - 600 = ₹ 2200 crores
NDP_{FC} = Compensation of employees + Operating surplus + Mixed Income

2200 = 400 + operating surplus + 200
Operating Surplus = 2200 – 600
= ₹ 1600 Crores

Space to write important points for revision

Q.1.3.11	2022 - Nov [8] (b) (i)	Practical

The following data is available for a company :

Particulars	Amount (in ₹ Crore)
Gross Value Added (GVA_{MP})	2,750
Sales	3,450
Closing Stock	750
Interest	200
Opening Stock	900
Net indirect taxes	550
Rent	310
Mixed Income	380
Compensation to employees	600
Consumption of fixed capital	320

Based on the above information, compute the following:
(i) Amount of Intermediate Consumption.
(ii) Net Domestic Product at Factor Cost (NDP_{FC}).
(iii) Profit of the company. (3 marks)

Q.1.3.12	2022 - Nov [11] (a) (i)	Practical

How are the following transactions treated in National Income Calculation?
(A) B sold a used car to C and receive ₹ 80,000. How much of the sale proceeds will be included in National Income calculation?
(B) Fees paid to real estate agents and lawyers.
(C) Electric power sold to a consumer household. (3 marks)

Q.1.3.13	**RTP**	**Practical**

You are give the following data on an economy in millions:

Consumer Expenditure (inclusive of indirect taxes)	110 m
Investment	20 m
Government Expenditure (inclusive of transfer payments)	70 m
Export	20 m
Imports	50 m
Net Property Income from abroad	10 m
Transfer payments	20 m
Indirect taxes	30 m
Population	0.5 m

(i) Calculate the Gross Domestic Product at market prices.
(ii) Calculate the Gross National Income at market prices.
(iii) Calculate the Gross Domestic Product at factor cost.
(iv) Calculate the per capita Gross National Income at factor cost.

Answer:

(i) $GDP_{MP} = C + I + G + (X - Z)$
= 110 + 20 + (70 – 20) + (20 – 50) =150 million

(ii) GNP_{MP} = GDP at market prices + net property income from abroad
= 150 + 10 = 160 million

(iii) $GDP_{\text{at factor cost}}$ = GDP market prices – indirect taxes
= 150 – 30 = 120 million

(iv) Per Capita Income = $\frac{\text{GNP at Factor Cost}}{\text{Population}}$ = (160 m – 30 m)/0.5 million
= 130/0.5 = 260

Space to write important points for revision

Q.1.3.14	Practice Question	Short Notes

Write short notes on the following:
1. Private Income
2. Personal Income
3. Personal Disposable Income

Answer:

1. Private Income

Private Income relates to income and other payment relating to private sector. It includes at payments, which are earned by private sector within the country and abroad, plus all current transfer payments.

Private Income can be obtained from the National Income as well as from the Domestic Income.

Private Income = NI - Income from domestic product accruing to Government sector + current transfer payments also

Private Income = NDP_{FC} accruing to Private sector + NFIA + Interest on national debt + current transfer from government + current transfer from rest of the world.

2. Personal Income

Personal income is the total of all current income received by households from all sources.

All income which accrue to the factors i.e. earned by the factors are not received by them (corporate saying, corporate tax) and on the other hand, there are certain payments which they receive but are not earned by them (pension, interest on national debt etc). Therefore personal income is the total of all such payment and income received whether or not they have earned, it.

Thus, Personal Income = Private income – Corporate Tax – Undistributed profit corporate saving.

3. Personal Disposable Income (PDI)

PDI is that part of personal income, which the individual can spend the way they like. It is the income remaining with individual after deduction of all taxes levied against their income and property by the Government.

Thus, PDI = Personal Income - Direct Personal taxes - Miscellaneous fees and fines paid by the householders to the Government.

Space to write important points for revision

Q.1.3.15	**Practice Question**	**Distinguish**
Differentiate between: National Income at Current Price and National Income at Constant Price.		

Answer:

Difference Between NI at Current Price and NI at Constant Price

S. No.	Basis of Difference	NI at Current Price	NI at Constant Price
1.	**Meaning**	When goods and services produced by normal residents within and outside the country in a year is valued at current year's price is called NI at current prices.	When goods and services produced by normal residents within and outside the country in a year is valued at constant price i.e. base year's price is NI at constant price.
2.	**Formula**	$Y = Q \times P$ **Where:** Y = NI at current price Q = Quantity of goods and services produced during an accounting year P = Prices of goods and services prevailing during the current accounting year.	$Y^1 = Q \times P^1$ **Where:** Y^1 = NI at constant price Q = Quantity of goods and services produced during an accounting year. P^1 = Prices of goods and services prevailing during the base year.
3.	**Also known as**	Nominal National Income.	Real National Income.

Space to write important points for revision

Q.1.3.16	Practice Question	Distinguish
What is the difference between Real GDP and Nominal GDP?		

Answer:

Difference between Real GDP and Nominal GDP

S. No.	Basis of Difference	Real GDP	Nominal GDP
1.	**Meaning**	Goods and services produced by all producing units within the domestic territory of a country during an accounting year valued at base years's price or constant price.	Goods and services produced by all producing units within the domestic territory of a country during an accounting year valued at current year's price.
2.	**Influenced by**	Influenced by change in physical output and not by change in price.	Influenced by change in both physical output an price level.
3.	**As an Indicator of economic development**	It is considered as a true indicator of economic development.	It is not a true indicator of economic development.

Space to write important points for revision

Q.1.3.17	Practice Question	Distinguish
How do you differentiate between: Private Income and Personal Income		

Answer:

Difference between Private Income and Personal Income

S. No.	Basis	Private Income	Personal Income
1.	**Meaning**	It is the total income of both private enterprises and households.	It is the actual income received by households and individuals.
2.	**Broad Vs Narrow**	It is a broader concept than personal income because it includes corporate tax and corporate savings.	It is a narrow concept than private income as it does not include corporate tax and corporate savings.
3.	**Comprises of**	Private Income = Domestic Income accrued to Private Sector + NFIA + All Transfer Payments + Interest on National Debts.	Personal Income = Private Income – Corporate Tax – Corporate Savings.

Space to write important points for revision

Q.1.3.18	Practice Question	Descriptive
What are the related concepts or aggregates of National Income?		

Answer:

The related concepts or Aggregates of National Income are as follows:

1. **Gross Domestic Product at Market price (GDP_{MP})**

   GDP_{MP} is the market value of the final goods and services produced during a year within the domestic territory of a country.

   Note: Gross indicates that the value of domestic product is inclusive of depreciation i.e. consumption of fixed capital. Within the domestic territory means within the boundaries of the country including the production by domestic companies and by foreign companies as well.

2. Gross National Product at Market price (GNP_{MP})

When net factor income from abroad (NFIA) is added to GDP_{MP} we get GNP_{MP}

Thus GNP_{MP} = NFIA + GDP_{MP}

NFIA is the difference between factor income Earned by our residents from the rest of the world and factor income earned by our residents within our country.

Thus, NFIA = Factor Income earned by our resident from abroad - Factor income earned by non-residents within our country.

3. Net National Product at Market price (NNP_{MP})

When Depreciation is subtracted from GNP_{MP} we get NNP_{MP}

Thus, NNP_{MP} = GNP_{MP} - Depreciation.

In other words NNP_{MP} - is the market value of final goods and service produced within the domestic territory of a country along with net factor income from abroad during a year.

What is depreciation?

Depreciation, also called consumption of fixed capital refers to the loss of value of fixed asset (PPE) on account of:

(i) Normal wear and tear
(ii) Normal obsolescence
(iii) Accidental damage of machinery.

4. Net Domestic Product at Market Price (NDP_{MP})

When Depreciation is subtracted from GDP_{MP} we get NDP_{MP}

Thus, NDP_{MP} = GDP_{MP} - Depreciation

In other words NDP_{MP} is the market value of final goods and services produced within the domestic territory of a country during a year, exclusive of depreciation.

5. Gross Domestic Product at Factor Cost GDP_{FC}

GDP_{FC} is the sum total of factor incomes (Rent + Interest + Wages + Profit) generated within the domestic territory of a country along with consumption of fixed capital i.e. depreciation, during a year.

6. Gross National Product at Factor cost GNP_{FC}

When net factor income from abroad (NFIA) is added to GDP_{FC} we get GNP_{FC}

Thus, $GNP_{FC} = GDP_{FC} + NFIA$

7. Net Domestic Product at Factor Cost NDP_{FC}

When depreciation is subtracted from GDP_{FC} we get NDP_{FC}

Thus, $NDP_{FC} = GDP_{FC}$ - Depreciation.

In other words, NDP_{FC} is the value of final goods and services produced within the domestic territory of a country at factor cost, exclusive of depreciation. It is the sum total of factor incomes generated within the domestic territory and is also known as Domestic income.

8. Net National Product at Factor cost NNP_{FC}

When NFIA is added to NDP_{FC} we get NNP_{FC}

Thus, $NNP_{FC} = NDP_{FC} + NFIA$.

In other words, NNP_{FC} is the sum total of factor incomes generated within the domestic territory of a country, along with net factor income from abroad during a year. It is this NNP_{FC} which is known as National Income.

9. National Disposable Income (NDI)

NDI is the income from all sources (earned income as well as transfer payments from abroad) available to residents of a country for consumption expenditure or for saving during a year.

Thus, NDI = National Income + Net Indirect taxes + Net current transfer from the rest of the world.

In other words, NDI refers to the net income at market price available to a country for disposal.

10. Factor Income from Net Domestic Product Accruing to Private sector.

Factor income from NDP accruing to private sector is the income earned by the private sector. It is that part of NDP_{FC} which accrues to the private sector and excludes:

1. Property and entrepreneurial income of the departmental and
2. Saving of the non departmental enterprises of the Government.

Thus Factor income from Net Domestic product Accruing to Private sector = NDP_{FC} - Income from Property and entrepreneurship accruing to Government department enterprises-saving of non-departmental enterprises.

11. Private Income

Please refer Q. No. 1.3.11 on page no. 483

12. Personal Income

Please refer Q. No. 1.3.11 on page no. 483

13. Personal Disposable Income (PDI)

Please refer Q. No. 1.3.11 on page no. 483

Space to write important points for revision

Q.1.3.19	Practice Question	Descriptive
Why 'Indirect Taxes' are deducted and 'Subsidy' is added in NDP_{MP} for calculating NDP_{FC}?		

Answer:

Deduction of Indirect-Taxes:

In the calculation of Net Domestic Product the value goods and services at market prices are taken into consideration which includes indirect taxes. Hence, the entire market price is not received by factors of production. So indirect taxes are deducted from market price for calculating the value of factor cost.

Addition of Subsidy:

Generally, government provides subsidy (i.e., economic assistance) to the producer or distributor, so that the commodity may be sold at lower prices. In this case, market price becomes lower to what factors of production actually get. Hence, for calculating the actual factor income, subsidy amount is added in market price.

Space to write important points for revision

Q.1.3.20	Practice Question	Practical

From the following data, calculate the GDP, GNP, NDP and NNP at both factor cost and market prices.

	₹ (Lakhs)
Gross investment	120
Net exports	15
Net indirect taxes	5
Depreciation	20
Net factor income from abroad	10
Personal consumption expenditure	450
Government purchases of goods and services	150

Answer:

		₹ (lakhs)
(a)	**GDP_{MP}**	
	Personal consumption expenditure	450
	Add: Gross investment	120
	Add: Government purchases of goods and services	150
	Add: Net exports	15
		735
(b)	**GNP_{MP}**	
	GDP_{MP}	735
	Add: Net factor income from abroad	10
		745
(c)	**NDP_{MP}**	
	GDP_{MP}	735
	Less: Depreciation	(20)
		715

Space to write important points for revision

Q.1.3.21	Practice Question	Practical

Given:

	₹ (Lakhs)
NDP_{FC}	10,000
Net factor Income from Abroad	200
Depreciation	300
Net Indirect Taxes	250

Calculate:

(a) NNP_{FC}
(b) GNP_{FC}
(c) GNP_{MP}
(d) NNP_{MP}
(e) NDP_{MP}
(f) GDP_{MP}
(g) GDP_{FC}.

Answer:

(a) **NNP_{FC} = NDP_{FC} + Net Factor Income from Abroad**
= 10,000 + 200
= ₹ 10,200 Lakhs

(b) **GNP_{FC} = NNP_{FC} + Depreciation**
= 10,200 + 300
= ₹ 10,500 crores.

(c) **GNP_{MP} = GNP_{FC} + Net Indirect Taxes**
= 10,500 + 250
= ₹ 10,750 Lakhs

(d) **NNP_{MP} = GNP_{MP} – Depreciation**
= 10,750 – 300
= ₹ 10,450 crores.

(e) **NDP_{MP} = NNP_{MP} – Net Factor Income from Abroad**
= 10,450 – 200
= ₹ 10,250 Lakhs

(f) **GDP_{MP} = NDP_{MP} + Depreciation**
= 10,250 + 300
= ₹ 10,550 Lakhs

(g) **GDP_{FC} = NDP_{FC} + Depreciation**
= 10,000 + 300
= ₹ 10,300 Lakhs

Space to write important points for revision

Q.1.3.22	Practice Question	Practical
		₹ **(Lakhs)**
GDP_{MP}		1,100
Net Factor Income from Abroad		100
Net Indirect Taxes (Value of Indirect Taxes – Subsidies)		150
National Income (or NNP_{FC})		850
Calculate the aggregate value of depreciation.		

Answer:

GNP_{MP} = GDP_{MP} + Net Factor Income from Abroad
= 1100 + 100 = 1200

GNP_{FC} = GNP_{MP} – Net Indirect Taxes
= 1200 – 150 = 1050

Deprecation = GNP_{FC} – NNP_{FC}
= 1050 – 850
= ₹ 200 Lakhs

Space to write important points for revision

Q.1.3.23	Practice Question	Practical
From the following data, calculate Personal Income (PI) and Personal Disposable Income (PDI):		
		₹ **(Lakhs)**
NDP_{FC}		10,000
Net Factor Income from Abroad		500

Undistributed Profit	1,500
Corporate Tax	800
Interest Received by Households	1,800
Interest paid by Households	1,600
Transfer Income	400
Personal Tax	600

Answer:

PI = NDP_{FC} + NFIA – Undistributed Profit – Corporate Tax – (Interest paid by households – Interest received by households) + Transfer Income

= 10,000 + 500 – 1,500 – 800 – (1,600 – 1,800) + 400

= 10,000 + 500 – 200 + 400 – (1,500) + 800)

= ₹ 8,800 Lakhs

PDI = Personal Income – Personal Tax

= 8,800 – 600

= ₹ 8,200 Lakhs.

Space to write important points for revision

Q.1.3.24	Practice Question	Practical

From the following data, estimate:

(a) GDP_{MP}

(b) Private Income and

(c) Personal Income

	₹ (Lakhs)
GNP_{FC}	14,500
Depreciation	1,300
Net Factor Income from Abroad	(–) 350
Income from property to government administrative department	1,500
National Debt Interest	400
Current transfers from ROW	250
Corporate Tax	280
Savings of private corporate sector	700
Indirect Taxes	800

Subsidies	250

Answer:

(a) **GDP_{MP}**

= GNP_{FC} – Net Factor income from abroad + Indirect Tax – Subsidies

= 14,500 – (– 350) + 800 – 250

= ₹ 15,400 Lakhs

(b) **Private Income**

= GNP_{FC} – Depreciation – Income from property to government administrative department + Current transfers from ROW + National Debt Interest

= 14,500 – 1,300 – 1,500 + 250 + 400

= ₹ 12,350 Lakhs

(c) **Personal Income**

= Private Income – Corporation Tax – Saving of private corporate sector

= 12,350 – 280 – 700

= ₹ 11,370 Lakhs.

Space to write important points for revision

Q.1.3.25	**Practice Question**	**Practical**
Given:		
		₹ (Lakhs)
GDP_{FC}		4,000
Depreciation		100
Net Indirect Taxes		300
NNP_{MP}		4,500
Calculate the Net Factor Income from Abroad		

Answer:

NDP_{FC} = GDP_{FC} – Depreciation

= 4,000 – 100

= 3,900

NDP_{MP} = NDP_{FC} + Net Indirect Taxes
= 3,900 + 300
= 4,200
NFIA = $NNP_{MP} - NDP_{MP}$
= 4,500 – 4,200
= ₹ 300 Lakhs

Space to write important points for revision

Q.1.3.26	Practice Question	Practical
Given:		
GNP_{MP}		7,000
Net Factor Income from Abroad		200
Depreciation		150
NDP_{FC}		6,200
Calculate the Net Indirect Tax.		

Answer:

GDP_{MP} = GNP_{MP} – Net Factor Income from Abroad
= 7,000 – 200
= ₹ 6,800 Lakhs
NDP_{MP} = GDP_{MP} – Depreciation
= 6,800 – 150
= ₹ 6,650 Lakhs
NIT = $NDP_{MP} - NDP_{FC}$
= 6,650 – 6,200
= ₹ 450 Lakhs.

Space to write important points for revision

Q.1.3.27	Practice Question	Practical
Calculate Gross National Disposable Income from the following data:		
		₹ **(Lakhs)**
National Income (or NNP_{FC})		2,000
Net Current Transfers from Rest of the World		200
Depreciation		100

Net Factor Income from Abroad	(–) 50
Net Indirect Taxes	250

Answer:

GNDI = NI + Net current transfers of the rest of the world + Depreciation + Net Indirect Taxes

= 2,000 + 200 + 100 + 250

= ₹ 2,550 Lakhs.

Space to write important points for revision

Q.1.3.28	**Practice Question**	**Practical**
From the following data calculate Income accruing to the private sector from domestic product:		₹ **(Lakhs)**
NNP_{MP}		15,000
Net Factor Income from Abroad		250
Indirect Tax		200
Subsidies		150
Income accruing to the public sector from domestic product		300

Answer:

NDP_{FC} = NNP_{MP} – Net Factor Income from Abroad – Indirect Tax + Subsidies

= 15,000 – 250 – 200 + 150

= ₹ 14,700 crores.

Income accruing to the private sector from domestic product = NDP_{FC} – Income accruing to the public sector.

∴ Income accruing to the private sector from domestic product = 14,700 – 300 = ₹ 14,400 Lakhs

Q.1.3.29	Practice Question	Practical

From the following data calculate Personal Income:

	₹ (Lakhs)
Private Income	12,000
Saving of Private Corporate Sector (or undistributed corporate profits)	200
Corporate Tax	70

Answer:

Personal Income

= Private Income – Saving of Private Corporate Sector – Corporate Tax

= 12,000 – 200 – 70

= ₹ 11,730 Lakhs.

Space to write important points for revision

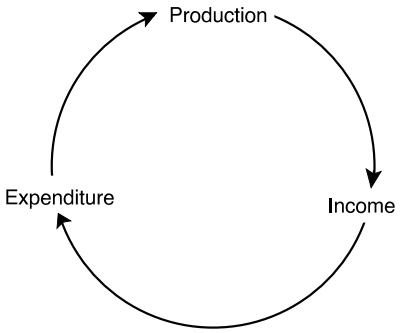
1.4 *Measurement of National Income in India: The Circular Flow of Income*

Q.1.4.1	2019 - Nov [10] (a) (i)	Descriptive
Explain the circular flow of income in an economy.		(3 marks)
OR	**2022 - May [8] (b) (i)**	**Descriptive**
Explain the 'Circular Flow of Income'.		(3 marks)

Answer:

Production is the result of collective efforts of various factors of production. Factors engaged in production process get their award - land, labour, capital and entrepreneurship get rent, wage, interest and profit respectively. Commercial firms make use of these factors for producing goods and services. These factors of production are not only suppliers of factors to the

producer, but they are consumers also. These factors earn their income on consumption. Commercial firms sell their product, earn income and again spend on completing production activity. Thus, flow of income circulates. Production gives birth to income, income to consumption, consumption to expenditure and again expenditure to income and production. Thus, circular flow of income earning economic activities takes places in the economy.



Hence, the circular flow of income refers to flow of money income or the flow of goods and services across different sectors of the economy in a circular form.

It is a continuous flow of production income and expenditure.

Definition:

According to Lipsey, "The circular flow of income is the flow of payment and receipts between domestic firms and domestic households."

Space to write important points for revision

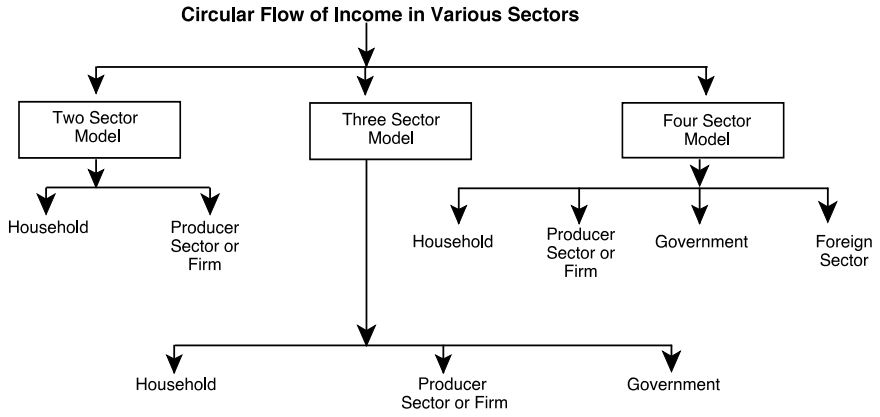
Q.1.4.2	Practice Question	Descriptive
What are the Principles of Circular Flow of Income? Explain.		

Answer:

Principles or Reasons of Circular Flow of Income:

Circular flow of income depends on two principles (or reasons) :

1. In the process of exchange, seller of the producer gets that money which is spent by buyer or consumer, i.e., income earned by the producer equals the income spent by the consumer.
2. Goods and services flow from sellers to buyers in one direction but the money payment for these goods and services flow in opposite direction i.e., it flows from buyers to sellers.



Q.1.4.3	Practice Question	Descriptive
State the relationship between leakages and injections in various economies		

Answer:

Relationship between Leakage and Injection:

For the equilibrium in economy, leakages should be equal to injections.

Or Injections = Leakages

Various sources of Injections and Leakages:

Two Sector Economy:

Leakages = Savings (S)

Injections = Investment (I)

Three Sector Economy:

Leakages = Savings + Tax
= S + T

Injections = Investment + Government Expenditure
= I + G

Four Sector Economy:

Leakages = Savings + Tax + Import
= S + T + M

Injections = Investment+Government Expenditure+Export
= I + G + X

Space to write important points for revision

Q.1.4.4	Practice Question	Descriptive
Elucidate the importance of Circular Income Flows.		

Answer:

Importance of Circular Income Flows:

In economic analysis circular income flow has a vital role to play. Salient points showing the importance of circular flow of income are as follows:

1. It helps in estimation of national income.
2. It gives the knowledge of working of the economy.
3. Equality between savings and investment becomes an important basis for monetary policy in the economy.

4. Its study also helps in fiscal policy from the economic point of view.
5. Its study helps in analysing the reasons of imbalance in the economy and making solutions to them.
6. Keynesian Theory of Income and Employment takes important note of elements associated with flow of money.
7. It also helps in studying the effects on imports and exports in the economy.
8. This circular flow explains that

Production = Income = Expenditure

This identity becomes basis for the methods of calculating national income.

1.5 *Measurement of National Income in India: Value added Method or Product Method*

Q.1.5.1	**2018 - May [10] (a) (ii)**	**Practical**

From the following data, compute the Gross National Product at Market Price (GNP_{MP}) using value added method.

	(₹ in crores)
Value of output in Secondary Sector	1,000
Intermediate consumption in Primary Sector	300
Value of output in Tertiary Sector	3,000
Intermediate consumption in Secondary Sector	400
Net factor income from abroad	(–) 100
Value of output in Primary Sector	800
Intermediate consumption in Tertiary Sector	900

(3 marks)

Answer:

	(₹ in cr.)
Value of output in primary sector	800
– Intermediate consumption of primary sector	(300)
+ Value of output in secondary sector	1,000
– Intermediate consumption of secondary sector	(400)
+ Value of output in tertiary sector	3,000
– Intermediate consumption of tertiary sector	(900)
GDP_{MP}	₹ 3,200 Cr.

GDP_{MP} + NFIA = GNP_{Mp}

∴ GNP_{MP} = 32,000 + (-100) = 3,100

Ans: GNP_{MP} = ₹ 3,100 Cr.

Q.1.5.2	**2021 - Jan [8] (a)**	**Practical**
Calculate GNP at market price from the following data using Value Added Method.		**(₹ in Crores)**
Government Transfer Payments		1800
Value of output in Primary Sector		1500
Value of output in Secondary Sector		2700
Value of output in Tertiary Sector		2100
Net factor income from Abroad		(-) 60
Intermediate Consumption in Primary Sector		750
Intermediate Consumption in Secondary Sector		1200
Intermediate Consumption in Tertiary Sector		900
		(5 marks)

Answer:

Gross Value Added at Market Price = Value of Output – Intermediate Consumption
= 1500 + 2700 + 2100 – 750 – 1200 – 900
= 3450 cr

GNP at market Price = Gross Value Added at Market Price + Net factor Income from Abroad
= 3450 + (–) 60
= 3390 cr

Space to write important points for revision

Q.1.5.3	Practice Question	Short Notes
Write short note on: Precautions to be taken while measuring National Income by Product Method.		

Answer :

Precautions to be taken while measuring National Income by Product Method:

1. The value of only final goods and services should be included to avoid double counting.
2. Sale and purchase of 2nd hand goods should not be counted.
3. Services of housewife should not be counted.
4. Production for self consumption should also be included
5. Imputed rental value of the self-occupied house should be included.

Space to write important points for revision

Q.1.5.4	Practice Question	Descriptive
How is NI measured by Value Added Method? Explain.		

Answer:

Product Method or Value added method is that method which measures the national income by estimating the contribution of each producing enterprise to production in the domestic territory of the country in an accounting year.

The steps involved are:

1st Step:

First of all the various producing enterprise in a country are classified into primary sector, secondary sector and tertiary sector.

2nd Step:

Estimating net value added.

Net value added = Value of out put - [Value of non factor inputs (also called intermediate consumption) + depreciation + net indirect tax]

Value of Output = Sales + Change in stock

Change in stock = Closing Stock - Opening stock

3rd Step:

The NVA of all the sectors of a country is added to obtain NDP at factor cost.

4th Step:

Estimating NFIA and adding the same to NDP to obtain net national product or National Income.

Thus, $\sum$NVA (of all the sectors) = NDP_{FC}

NDP_{FC} + NFIA = NNP_{FC}

NNP_{FC} = NI.

Space to write important points for revision

Q.1.5.5	Practice Question	Practical

Calculate value added by Firm X and Firm Y from the following data:

	₹ (Lakhs)
Sales by Firm X	200
Sales by Firm Y	1,000
Purchases by households from Firm Y	600
Exports by Firm Y	100
Change in stock of Firm X	40
Change in stock of Firm Y	20

Imports by Firm X	140
Sales by Firm Z to Firm Y	500
Purchases by Firm Y From X	400

Answer:

		₹ (Lakhs)
(i)	**Value Added by Firm X**	
	Sales by Firm X	200
	Add: Change in stock of Firm X	40
	Less: Imports by Firm X	(140)
		100
(ii)	**Value Added by Firm Y**	
	Sales by Firm Y	1,000
	Add: Purchases by households from Firm Y	600
	Add: Exports by Firm Y	100
	Add: Change in stock of Firm Y	20
	Less: Sales by Firm Z to Firm Y	(500)
	Less: Purchases by Firm Y from X	(400)
		820

Q.1.5.6	Practice Question	Practical

Calculate the net value added at factor cost a producing unit from the following data:

	₹ (Lakhs)
Total Sales	4,000
Closing stock	700
Opening stock	500
Indirect Taxes	200
Subsidies	150
Depreciation	300
Purchase of raw material from other firms	1,000

Answer:

Value of output

= Total sales + Change in stock
(Clo. stock – Op. stock)

= 4,000 + (700 – 500)

= ₹ 4,200 Lakhs.

GVA_{MP}

= Value of output – Purchase of material from other firms

= ₹ 4,200 – 1,000 = ₹ 3,200 Lakhs.

Net Value Added at factor cost

= GVA_{MP} – Depreciation – (Indirect taxes – Subsidies)

= ₹ 3,200 – 300 – (200 – 150)

= ₹ 2,850 Lakhs.

Space to write important points for revision

Q.1.5.7	Practice Question	Practical
Given:		
Value of gross output at market prices		₹ 10,000
Intermediate consumption		₹ 3,000
Net indirect taxes		₹ 700
Consumption of fixed capital		₹ 140
Calculate:		
(a) Gross Value Added at market price.		
(b) Gross Value Added at factor price.		
(c) Net Value Added at factor cost.		

Answer:

(a) **Gross Value Added at market price.**

= Value of Gross $Output_{MP}$ – Intermediate consumption

= ₹ 10,000 – 3,000 = ₹ 7,000

(b) **Gross Value Added at factor cost**

= GVA_{MP} – Net Indirect Taxes

= ₹ 7,000 – 700 = ₹ 6,300

(c) **Net Value Added at factor cost**

= GVA_{FC} – Consumption of fixed capital

= ₹ 6,300 – 140 = ₹ 6,160

Space to write important points for revision

Q.1.5.8	Practice Question	Practical

From the following data, find out.
Value of output at market prices;
Gross value added at market prices;
Net value added at market prices;
Net value added at factor cost.

	₹ (Lakhs)
Opening stock	400
Closing stock	200
Purchase of raw material	300
Sales	1600
Consumption of fixed capital	200
Indirect taxes	150
Subsidies	50

Answer:

(a) **Value of output at market prices**
- = Sales + Closing stock – Opening stock
- = (1,600 + 200 – 400)
- = ₹ 1,400 Lakhs

(b) **Gross value added at market prices**
- = Value of output – Purchase of raw materials
- = (1,400 – 300)
- = ₹ 1,100 Lakhs

(c) **Net value added at market prices**
- = Gross value added – Consumption of fixed capital
- = (1,100 – 200)
- = ₹ 900 Lakhs

(d) **Net value added at factor cost**
- = NVA at market prices - Indirect taxes + Subsidies
- = (900 – 150 + 50)
- = ₹ 800 Lakhs.

Space to write important points for revision

Q.1.5.9	**RTP**	**Practical**

Using the information given in the following table calculate,

(i) Value added by firm A and firm B

(ii) Gross Domestic Product at Market Price

(iii) Net Domestic Product at Factor Cost.

	Particulars	**₹ crore**
(i)	Sales by firm B to general government	300
(ii)	Sales by firm A	1500
(iii)	Sales by firm B to households	1350
(iv)	Change in stock of firm A	200
(v)	Closing stock of firm B	140
(vi)	Opening stock of firm B	130
(vii)	Purchases by firm A	270
(viii)	Indirect taxes paid by both the firms	375
(ix)	Consumption of fixed capital	720
(x)	Sales by firm A to B	300

Answer:

(i) Value added by Firm A and Firm B

Gross Value Added (GVA_{MP}) of Firm A

= Gross value of output (GVO_{MP}) of Firm A - Intermediate consumption of firm A

= (Sales by firm A + Change in stock of firm A) - (Purchases by firm A)

= [(ii) + (iv)] – (vii) = (1500 + 200) - 270

= **1430 Crores**

Gross Value Added (GVA_{MP}) of Firm B = Gross value of output (GVO_{MP}) of firm B -Intermediate consumption of firm B

= [Sales by firm B to general government + Sales by firm B to households + (Closing stock of firm B - Opening stock of firm B)] - Purchases by firm B
= [(300 + 1350) + (140 - 130)] - 300
= 1650 + 10 - 300 = ₹ **1360 Crores**

(ii) Gross Domestic product at Market Price:
= Value added by firm A + Value added by firm B
= 1430 + 1360 = ₹ **2790 Crores**

(iii) Net Domestic Price at Factor Cost:
NDP_{FC} = Gross Domestic product at market price - Consumption of fixed capital – Indirect taxes paid by both the firms
= 2790 - (ix) - (viii) = 2790 - 720 - (375 -0) = ₹ **1695 Crores**

Space to write important points for revision

1.6 *Measurement of National Income in India: Income Method*

Q.1.6.1	2019 - Nov [11] (a) (i)	Practical

Compute NNP at factor cost or national income from the following data using income method:

	(₹ in crores)
Compensation of employees	3,000
Mixed income of self-employed	1,050
Indirect taxes	480
Subsidies	630
Depreciation	428
Rent	1,020
Interest	2,010

Profit	980
Net factor income from abroad	370

(3 marks)

Answer:

NNP at factor cost or National Inocme =

Compensation of employees + operating Surplus (rent + interest + profit) + Mixed Income of Self - employed + Net factor Income from Abroad.

= ₹ 3000 Cr. + (₹ 1020 Cr. + ₹ 2010 Cr. + ₹ 980 Cr.) + ₹ 1050 Cr. + ₹ 370 Cr.

= ₹ 8430 Cr.

Space to write important points for revision

Q.1.6.2	**2021 - July [8] (a)**	**Practical**

Calculate the national income using income and expenditure method from the data given below:

	Items:	**₹ in crores**
(i)	Government purchase of goods and services	7,000
(ii)	Indirect tax	9,000
(iii)	Subsidies	1,800
(iv)	Gross business fixed capital	13,000
(v)	Inventory Investment	3,000
(vi)	Consumption of fixed capital	4,000
(vii)	Personal consumption expenditure	51,000
(viii)	Export of goods and services	4,800
(ix)	Net factor income from aboard	(–) 300
(x)	Imports of goods and services	5,600
(xi)	Mixed income of self employed	28,000
(xii)	Rent, interest and profits	10,000
(xiii)	Compensation of employees	24,000

(3 + 2 = 5 marks)

Answer:

Income Method:

GDP_{MP} = Compensation of employees + Profits+rent+interest + mixed income of self employed + depreciation+net indirect taxes (Indirect taxes – Subsidies)

GDP_{MP} = 24,000 +10,000 + 28,000 + 4,000 + 7,200 (9,000 - 1,800) = 73,200

GNP_{MP} = GDP_{MP} + NFIA = 73,200 + (–) 300 = 72,900

NNP_{MP} = GNP_{MP} – Depreciation = 72,900 – 4,000 = 68,900

NNP_{FC} (NI) = NNP_{MP} – Net indirect taxes

= 68,900 – 7,200 = 61,700

Expenditure Method:

GDP_{MP} (Y) = C + I + G + (X – M)

= 51,000 +16,000 (13,000 + 3,000) +7,000 + (4,800 – 5,600) = 73,200

GNP_{MP} = GDP_{MP} + NFIA

= 73,200 + (–) 300 = 72,900

NNP_{MP} = GNP_{MP} – Depreciation = 72,900 – 4,000 = 68,900

NNP_{FC} (NI) = NNP_{MP} – Net Indirect taxes = 68,900 – 7,200 = 61,700

Q.1.6.3	Practice Question	Descriptive
Discuss the Income Method of measuring National Income.		

Answer:

Income Method of Measuring National Income:

Income method is that method which measures NI from the payment point of view where payment is made in form of wages, rent, interest and profit to the primary factors of production i.e. labour, land, capital, and enterprise respectively for their productive services in an accounting year.

The steps involved are:

1st Step:

First of all the various producing enterprise in a country are classified into

(a) Primary sector

(b) Secondary sector

(c) Tertiary sector.

2nd Step:

All the factor payments are classified as follows:

(i) Income from work - wages and salary
(ii) Income from property - Rent and Interest
(iii) Income from profit - Dividend, Undistributed Profit and Corporate taxes
(iv) Mixed Income - income of self-employed like doctor, advocate etc.

3rd Step:

Domestic factor Income is estimated by adding all the factor payments of all the enterprises of all the sector.

4th Step:

Net Income earned from abroad is estimated and added to domestic Income to arrive at national product, which is the national Income.

Thus,

Wage
\+ Salary
\+ Profit
\+ Rent
\+ Interest
\+ Mixed Income
= NDP_{FC} = Domestic Income + NFIA
= NNP_{FC} = National Income.

Space to write important points for revision

Q.1.6.4	Practice Question	Short Notes
Write short note on: Precautions to be taken while measuring National Income by Income Method		

Answer:

Precautions to be taken while measuring National Income by Income Method

1. Windfall gains like income from lottery are not included.
2. Wealth tax capital gain tax are not to be included.
3. Production for self-consumption should also be included.
4. Imputed rental value of self-occupied house should also be included.
5. Sale and purchase of 2nd hand goods should not be counted.
6. Income of gamblers, smugglers, thieves etc. should not be included.
7. Financial transaction such as sale of shares is not included.

Space to write important points for revision

Q.1.6.5	Practice Question	Descriptive
State the various components of: Domestic Income		

Answer:

Components of Domestic Income

1. **Compensation of employees**
   (i) Wages and salaries
   (ii) Employer's contribution to social security schemes.
2. **Operating Surplus**
   (i) Rent
   (ii) Interest
   (iii) Profit
3. Mixed Income for self employed persons.

Space to write important points for revision

1.7 *Measurement of National Income in India: Expenditure Method*

Q.1.7.1	2018 - May [9] (b)	Practical

Suppose in an economy:

Consumption Function	:	$C = 150 + 0.75\ Y_d$
Investment spending	:	$I = 100$
Government spending	:	$G = 115$
Tax	:	$Tx = 20 + 0.20\ Y$
Transfer Payments	:	$Tr = 40$
Exports	:	$X = 35$
Imports	:	$M = 15 + 0.1\ Y$

Where, Y and Y_d are National Income and Personal Disposable Income respectively. All figures are in rupees.

Find:

(i) The equilibrium level of National Income
(ii) Consumption at equilibrium level
(iii) Net Exports at equilibrium level (5 marks)

Answer:

The consumption function is

$C = 150 + 0.75Y_d$

Level of Disposable income Yd is given by

Y_d = Y-Tax + Transfer Payments, Where, Transfer Payment = Tr = 40

$= Y - (20 + 0.20\ Y) + 40 = Y - 20 - 0.20Y + 40$

$= Y - 0.2Y - 20 + 40$

$Y_d = 20 + 0.8\ Y$ and $C = 150 + 0.75\ Y_d$

$C = 150 + .75\ (20 + 0.8\ Y)$ where $Y_d = (20 + 0.8Y)$

C = 150 +15+ 0.6Y

C = 165 + 0.6Y

(i) **The equilibrium level of national income**

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

Y = 165 + 0.6Y +100+115+ [35 – (15+0.1Y)]

= 165 +0.6 Y +100+115+ [35 -15 – 0.1Y]

= 165+0.6Y +215+ 35 – 15 - 0.1Y

Y = 400+ 0.5Y

Y-0.5Y = 400; 0.5 Y = 400

Y = 400 / 0.5

= 800

The equilibrium level of national income is ₹ 800

(ii) **Consumption at equilibrium level of national income of ₹ 800**

C = 165 + 0.6Y

C = 165 + 0.6(800)

C = 165+480 = 645

Consumption at equilibrium level = ₹ 645

(iii) **Net Exports at equilibrium level of national income 800**

Net exports = Value total exports - Value of total imports

Given, exports X = 35; and imports M = 15+0.1Y

Net exports = [35 - (15+0.1Y)]

= 35 -15 – 0.1Y

= 35 -15 – (0.1X 800) = 35 – 15 – 80 = - 60

Net exports = ₹ (-)60

There is an adverse balance of trade

Space to write important points for revision

Q.1.7.2	**2019 - May [8] (a)**	**Practical**

Compute GNP at factor cost and NDP at market price using expenditure method from the following data:

	(₹ in Crores)
Personal Consumption expenditure	2900
Imports	300
Gross public Investment	500
Consumption of fixed capital	60
Exports	200
Inventory Investment	170
Government purchases of goods & services	1100
Gross Residential construction Investment	450
Net factor Income from abroad	(–) 30
Gross business fixed Investment	410
Subsidies	80

(5 marks)

Answer:

GDP_{MP} = Personal consumption expenditure + Gross Investment (Gross fixed investment + inventory investment) + Gross residential construction investment + Gross Public investment + Government purchases of goods and services + Net Exports (Exports – Imports)

GNP_{MP} = GDP_{MP} + Net factor income from abroad

GNP_{FC} = GNP_{MP} – Indirect Taxes

So, GDP_{MP} is :

	₹ in cr.
Personal consumption expenditure	2900
Gross business fixed investment	410
Inventory investment	170
Gross Residential construction investment	450

Gross public investment	500
Government purchases of goods & services	1100
Net Exports (Exports – Imports) (₹ 200 – ₹ 300)	-100
GDP_{MP}	**5430**

GNP_{MP} = ₹ 5,430 Cr. + (– 30 Cr.)
= ₹ 5,400 Cr.

Here, there is no indirect taxes, so $GNP_{MP} = GNP_{FC}$

So, **GNP_{FC}** = ₹ 5,400 Cr.

NDP_{MP} = GDP_{MP} – Consumption of fixed capital
= ₹ 5,430 Cr. – ₹ 60 Cr.

NDP_{MP} = ₹ 5,370 Cr.

Space to write important points for revision

Q.1.7.3	2020 - Nov [8] (a)	Practical

You are given the following information of an economy:

Consumption Function	: C = 200 + 0.60 Yd
Government Spending	: G = 150
Investment Spending	: I = 240
Tax	: Tx = 10 + 0.20Y
Transfer Payment	: Tr = 50
Exports	: X = 30 + 0.2Y
Imports	: M = 400

Where Y and Yd are National Income and Personal Disposable Income respectively. All figures are in ₹.

Find:

(i) The equilibrium level of National Income.
(ii) Net Exports at equilibrium level.
(iii) Consumption at equilibrium level. (5 marks)

Answer:

Consumption Function is:

C = 200 + 0.60 Yd

∴ Level of disposable income yd is given by

Yd = Y + Tr – Tax
= Y + 50 – (10 + 0.20Y)
= Y + 50 – 10 – 0.2Y
= 40 + 0.8Y

Now C = 200 + 0.6 Yd
= 200 + (0.6) (40 + 0.8Y)
= 200 + 24 + 0.48Y
= 224 + 0.48Y

(i) The Equilibrium Level of NI:

Y = C + I + G + (X – M)
Y = 224 + 0.48Y + 240 + 150 + [30 + 0.2Y – (400)]
Y = 224+ 240 + 150 + 30 – 400 + 0.48Y + 0.2Y
Y = 244 +0.68Y
Y – 0.68Y = 244
Or 0.32Y = 244
$Y = \frac{244}{0.32}$ = 762.5 crores

(ii) Net Export at Equilibrium Level:

Net Export = X – M
= (30 + 0.2Y) – 400
= 30 + 0.2Y – 400
= 30 + 0.2 (762.5) – 400
= 30 + 152.5 – 400
= – 217.5 crores

(iii) Consumption at Equilibrium Level

C = 224 + 0.48Y
= 224 + 0.48 (762.5)
= 224 + 366 = 590 crores.

Space to write important points for revision

Q.1.7.4	2021 - July [11] (a) (i)	Practical

The equation of 'consumption function' of an economy is as follows:
C = ₹ 450 + 0.70 y
You are required to compute the following:
(1) Consumption when disposable income (y) is ₹ 3,500 and ₹ 5,800.
(2) Saving when disposable income (y) is ₹ 3,500 and ₹ 5,500.
(3) Amount induced when disposable income is ₹ 3,200. (3 marks)

Answer:

(1) Consumption (C) = 450 + 0.70Y
When Y = ₹ **3,500**
C = ₹ 450 + 0.70 (₹ 3,500)
= ₹ 450 + ₹ 2,450
= ₹ **2,900.**
When Y = ₹ **5800**
C = ₹ 450 + ₹ 0.70 (₹ 5,800)
= ₹ 450 + ₹ 4,060
= ₹ **4,510.**

(2) Savings (s) = Y - C
When Y = ₹ 3,500
C = ₹ 3,500 - ₹ 2,900
= ₹ **600.**
When Y = ₹ 5,500
C = ₹ 5,500 - [450 + 0.70 (₹ 5,500)]
= ₹ **1,200.**

(3) Amount induced when disposable income is ₹ 3,200
Y = C + I
C = 450 + 0.70 × 3,200 = 2,690
3,200 = 2,690 + I
I = 510

Space to write important points for revision

Q.1.7.5	2021 - Dec [9] (d)	Descriptive
What do you mean about gross investment of a country? (2 marks)		

Answer:

Gross domestic fixed capital formation is that part of country's total expenditure which is not consumed but added to the nation's fixed tangible assets and stocks. It consists of the acquisition of fixed assets and the accumulation of stock. The stock accumulation is in the form of the change in stock of raw materials, fuels, finished goods and semi-finished goods awaiting completion. Thus, gross investment includes final expenditures or machinery and equipment and own account production of machinery and equipments expenditures on construction, expenditure on changes in inventories, and expenditure on the acquisition of valuables such as Jewellery and works of art.

Space to write important points for revision

Q.1.7.6	2022 - May [11] (b) (i)	Practical

Following information, relating to an economy of a country, for the current year are as under:

Particulars	(In Crores ₹)
GDP_{MP}	6550
Gross Investment (Including Business fixed investment, Residential construction investment, Public & Inventory investment)	1000
Government Purchases of goods and services	1500
Exports	400
Imports	350
GNP_{MP}	6600
Indirect Taxes	200

Depreciation	200

Find out:
(A) Private Final Consumption Expenditure
(B) Net Factor Income from Abroad
(C) NNP_{FC} or National Income (3 marks)

Answer:

(A) GDP_{MP} = Private Final Consumption Expenditure + Gross Investment. (Including Business fixed investment, Residential Construction Investment, Public & Inventory Investment) + Government Purchases of goods and services + Net Exports (Exports - Imports)
6550 = Private Final Consumption Expenditure + 1000 + 1500 + (400 - 350)
Private Final Consumption Expenditure = ₹ 4,000 crores.

(B) $GNP_{MP} = GDP_{MP}$ + Net Factor Income from Abroad
6600 = 6550 + Net factor Income from Abroad
Net factor Income from Abroad = ₹ 50 crores

(C) NNP_{FC} or National Income = GDP_{MP} + Net factor Income from Abroad - Indirect taxes - Depreciation
6550 + 50 - 200 - 200
NNP_{FC} or National Income = ₹ 6,200 crores

Space to write important points for revision

Q.1.7.7	Practice Question	Descriptive

How is National Income measured by Expenditure Method?

Answer:

Expenditure Method of Measuring National Income:

Expenditure method is the method, which measures the final expenditure on GDP at market price during an accounting year.

The steps involved are:

1st Step:

The private final consumption expenditure is estimated.

This expenditure is the expenditure by consumer households and non profit making institutions on:

(a) Durable consumer goods-fan, TV etc.
(b) Single use consumer goods-milk, fruit
(c) Services such as education, medical facilities etc.

2nd Step:

The Government final consumption expenditure is estimated. This is the expenditure incurred by Govt. for the general well being of the citizen's like-education, health and medical care, electricity and water supply etc.

3rd Step:

The gross domestic capital formation is estimated. Gross domestic capital formation is the sum of change in stock and gross fixed domestic capital formation.

4th Step:

The net export of goods and services is estimated. Net export is the difference between export and import of a country.

5th Step:

All the items from 1st to 4th step is added. The sum is the expenditure on domestic product. It is also known as NDP at market price.

6th Step:

The NFIA is estimated and added to the NDP_{MP} to get NNP_{MP}, which is the National income at Market price. To obtain NI at factor cost, net indirect taxes have to be subtracted.

Space to write important points for revision

Q.1.7.8	Practice Question	Short Notes
Write short note on: Precautions to be taken while measuring National Income by Expenditure Method.		

Answer:

Precautions to be taken while measuring National Income by Expenditures Method:

1. Expenditure on 2nd hand good should not be included.

2. Expenditure on financial transaction like purchase of shares should not be included.
3. Government expenditure on transfer payments should not be included.
4. To avoid double counting only expenditures on final goods and services is to be included.

Space to write important points for revision

Q.1.7.9	Practice Question	Descriptive
State the various components of: Final Expenditure		

Answer:

Components of Final Expenditure

1. **Final consumption expenditure**
   (i) Private final consumption expenditure.
   (ii) Government final consumption expenditure.
2. **Gross Domestic Capital Formation**
   (i) Gross domestic fixed capital formation.
   (ii) Change in stock
3. **Net export (X – M)**
   (i) Export (X)
   (ii) Import (M)

Space to write important points for revision

1.8 *Limitations and Challenges of National Income Computation*

Q.1.8.1	2019 - May [9] (b) (ii)	Descriptive
What are the conceptual difficulties in the measurement of national income? (2 marks)		

Answer:

The conceptual difficulties in the measurement of national income are as follows:

1. Lack of an agreed definition of national income
2. Accurate distinction between final goods and intermediate goods
3. Issue of transfer payments
4. Services of durable goods
5. Difficulty of incorporating distribution of income
6. Valuation of a new good at constant prices, and
7. Valuation of government services.

Space to write important points for revision

Q.1.8.2	Practice Question	Short Notes
Write short note on: Problems in estimation of National Income.		

Answer:

Problems in estimation of National Income:

1. **Presence of non-monetised sector:** Sometimes, a part of production escapes valuation (due to self consumption) Thus, NI is under estimated is that extent.
2. **Ignorance of Indian producer:** Many a time the producers are ignorant about the exact value and quantity of their produce.
3. **Lack of differentiation of economic functions:** When a person is engaged in many occupation simultaneously it is difficult to make proper valuation of his total economic efforts.
4. **Non-availability of reliable data:** There is lack of adequate data and reliability in it is low. The estimates of costs are generally absent in primary and subsidiary occupation.
5. **Avoidance of financial burden:** To avoid the tax liability, people do not furnish exact data about their income and expenditure.

Space to write important points for revision

Unit II — *The Keynesian Theory of Determination of National Income*

2.1 — *Circular Flow in a Simple Two Sector Model*

Q.2.1.1	Practice Question	Descriptive
Explain briefly the Two Sector Model of Circular Flow of Income.		

Answer:

Two Sector Model of Circular Flow of Income:

The structure of macro economy is given by circular flows of income and output. In a two sector model of circular flow of income, there are only two sectors.

- Household sector.
- Producer sector (Firms)

A two sector model of circular flow of income thus deals with circular flow (Money flow as well as real flow) between these two sectors.

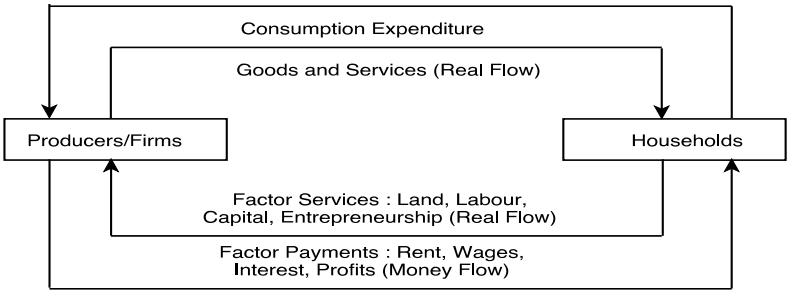
Assumptions:

1. The economy consists of two sectors:
   (a) Household Sector:
   This sector provides its services to producer sector and consumes the goods and services finally produced by producer sector.
   (b) Producer Sector:
   It produces final goods and services and makes use of the services of various factors like land, labour, capital, etc.
2. Economic policies are not influenced by the government.
3. Economy is 'closed economy', i.e., producer sector makes neither exports nor imports and household sector is fully dependent on domestic production.
4. Household sector spends its entire income and saves nothing.

Explanation:

- Under these presumptions the firm sector hires factor services from households, who are owners of factors of production (land, labour, capital and enterprise), for producing goods and services and pays them remuneration (or compensation) in the form of money for rendering the productive services.
- For the factors of production, these are factor incomes known as rent, wages, interest and profit which have been generated in the production process.
- Thus, money income flows from firm sector to the households. With this money the households purchase from the firms, manufactured goods and services to satisfy their wants with the result, the same money flows back from households to the firm sector.
- Thus, entire income of economy comes back to firms in the form of sales revenue. Clearly one man's (or sector's) expenditure is other man's (or sector's) income.

Structure of Two Sector Model



Q.2.1.2	Practice Question	Descriptive
Explain briefly the Two Sector Model of Circular Flow with Saving-Investment within a Capital Market or Financial Systems.		

Answer :

- **Two Sector Model with Saving-Investment within a Capital Market or Financial Systems:**

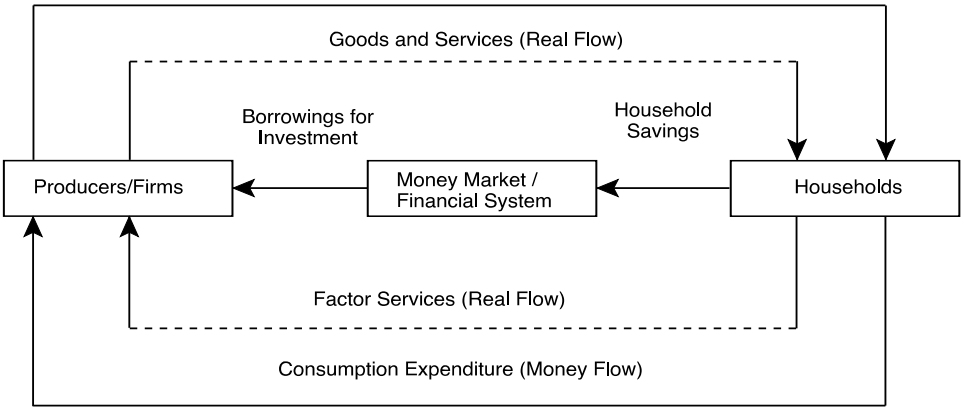
In real life both household sector, (i.e., family) and producer sector (i.e., firm) save a part of their income. This saying is withdrawn from money flow and consequently money flow squeezes. This is called leakage. Thus, saving is a leakage from money flow which becomes available in capital market for loaning purposes. This becomes an injection in the circular how. Commercial firms borrow from capital market for investment. Investment has the opposite effect than that of saving. If the saving made by households returns back to money circulation through investment of commercial firms, money circulation remains stable.
Hence, in a two sector model, the equilibrium condition or the stability condition is:

Savings = Investment

S = I

Factor Payments (Money Flow)

- Capital market consisting of financial institutions plays an important role. Financial institutions are primary intermediaries between savers and investors or lenders and borrowers.



Two Sector Circular Flow Model with Savings Investment (Financial System)

Space to write important points for revision

Q.2.1.3	Practice Question	Short Notes
Write short note on: The Various Sectors of Two Sector Economy.		

Answer:

Household Sector:

1. Household sector is the owner of factors of production.
2. This sector receives income in the form of wages, rent, interest and profits. They also get certain transfer payments from the government.
3. This sector spends money on the purchase of goods and services produced by the producing sector (or business sector) and also pays taxes to the government.
4. This sector saves a part of its income which goes to the financial market.

Producing Sector (Firm):

1. Producing sector (firms) produces goods and services which are consumed by the households and government. The firms in turn receive revenue from the sale of their goods and services. This sector also earns export income.
2. This sector hires factor services and makes them payments. It also makes payment to other countries for goods/services imported.
3. This sector also has to pay taxes to the government on sale and production of their goods. Certain firms receive subsidies from the government.
4. This sector also saves a part of its income.

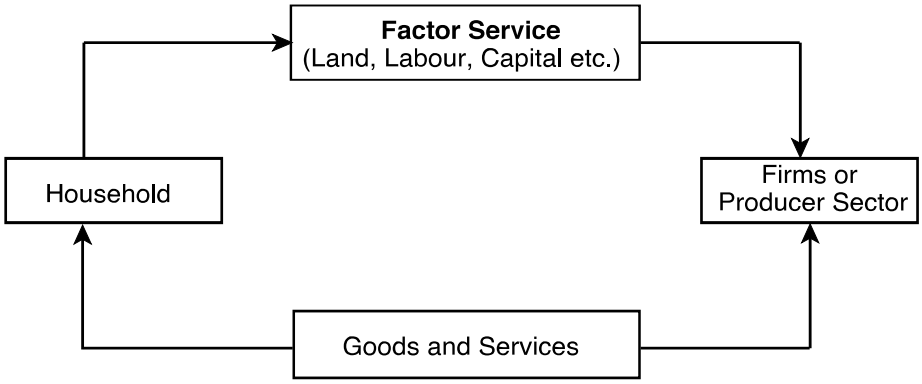
Space to write important points for revision

Q.2.1.4	Practice Question	Distinguish Between
Distinguish between: Real Flows and Money Flows in a Two Sector Economy.		

Answer:

Real Flows:

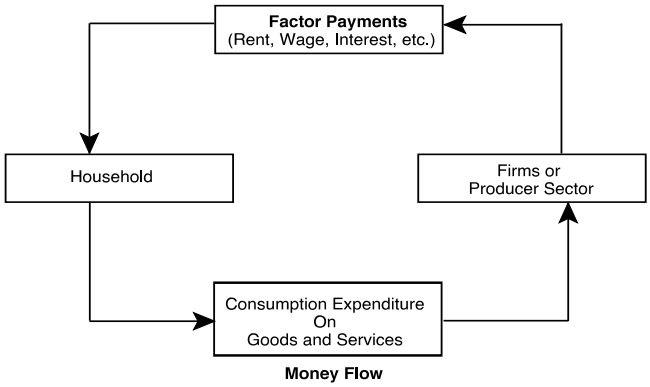
Real flows refer to flows of goods and services. These are called real flows because they consist of actual goods and services. In the context of national accounting, real flow implies flow of factor services from household sector to the firm (or producing) sector and the corresponding flow of goods and services from firm sector to the household sector. Thus, flows of goods and services between firm sector and household sector are real flows. Such flows are continuous and there is no beginning or end point in these flows.



Real Flow

Money Flows:

These refer to flows of money in the form of factor payments and consumption expenditure. The monetary flows occur because it is through money that various transactions are conducted bringing flows of money from one sector to another.



When factor incomes (rent, wages, interest and profit) flow from firm sector to the households as reward for their factor services, these are called monetary flows. Similarly, when households spend their incomes on, purchase of goods and services produced by the firm sector, money flows back to the firm sector, household expenditure. These also indicate monetary flows. In short, flows of money between firm sector and household sector are monetary flows.

Space to write important points for revision

2.2 *The Aggregate Demand Function: Two Sector Model*

Q.2.2.1	2019 - Nov [9] (b) (i)	Descriptive
Explain the consumption function using a suitable table and diagram. (3 marks)		

Answer:

Propensity to Consume or Consumption Function

Meaning:

The relationship between consumption and income is called consumption function (or propensity to consume). In other words, propensity to consume means proportion of income spent on consumption. Consumption being a part of income directly depends upon income itself. Thus consumption (C) is a function (f) of income (Y).

Symbolically, C = f(Y).

Consumption may be divided in two parts:

(i) First part relates to consumption when income is zero, i.e., when minimum level of consumption has to be maintained for survival. This is called **autonomous consumption** (denoted by $\overline{C}$).

(ii) Second part of consumption is when income increases, consumption also increases but by a lesser amount i.e. additional consumption (ÄC) is less than additional income (ÄY) or ÄC/ÄY is less than 1.This may be represented, by b **(i.e., marginal propensity to consume).**

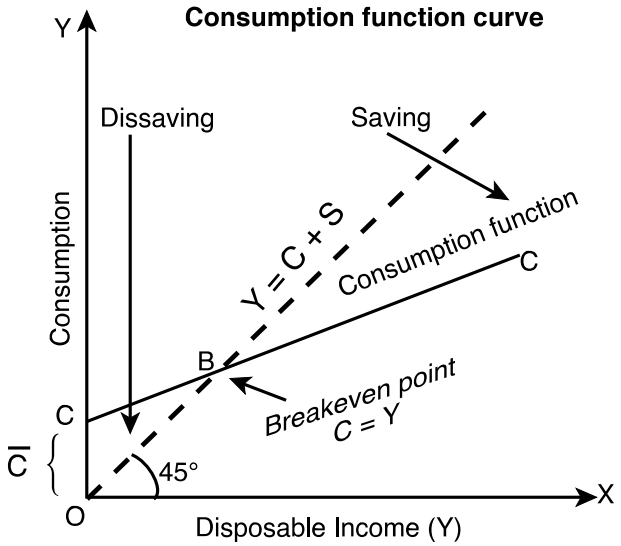
Thus, Consumption function (linear consumption function) may be represented in the following equation.

$$C = \overline{C} + bY$$

Here C is consumption, $\overline{C}$ is autonomous consumption, b is marginal propensity to consume or MPC and Y is level of income.

Consumption function schedule and curve:

National Income (Y) ₹ crores	**Consumption (C) ₹ crores**	
0	60	
100	140	C > Y
200	220	
300	300	C = Y
400	380	C < Y
500	460	



Comments:

1. Consumption can never be zero even if income is zero because survival needs some minimum consumption (called Authonomous Consumption). That is why consumption curve starts from positive point C on Y-axis. In Fig. OC is the minimum level of consumption.
2. Slope of consumption curve is constant making it a straight line because for convenience sake we have assumed marginal propensity to consume to be constant. (e.g., MPC, i.e., ÄC/ÄY is 0.8 throughout in the schedule).
3. Point B is the breakeven point indicating consumption = Income – Before it consumption > income showing dissaving but after point B consumption < income indicating saving.
4. 45° dotted line Y = C + S is the line of equality where each point indicates consumption is equal to income.

Space to write important points for revision

Q.2.2.2	2018 - May [7] {C} (a)	Practical

Calculate the Marginal Propensity to Consume (MPC) and Marginal Propensity to Save (MPS) from the following data:

Income (Y)	Consumption (C)	Level
₹ 8,000	₹ 6,000	Initial level
₹ 12,000	₹ 9,000	Changed level

(2 marks)

Answer:

(i) Change in consumption ($\triangle C$) = 9,000 – 6,000
= ₹ 3,000

Change in Income ($\triangle Y$) = ₹ 12,000 – ₹ 8,000
= ₹ 4,000

Marginal Propensity to Consume (MPC) = $\frac{\triangle c}{\triangle y}$

= $\frac{3,000}{4,000}$

= 0.75

(ii) MPC + MPS = 1
0.75 + MPS = 1
MPS = 0.25
Marginal Propensity to Save (MPS) = 0.25

Space to write important points for revision

Q.2.2.3	2018 - Nov [9] (b) (ii)	Practical

Calculate the Average Propensity to Consume (APC) and Average Propensity to Save (APS) from the following data:

Income	Consumption
₹ 4,000	₹ 3,000

(2 marks)

Answer:

(ii) Average Propensity to Consume (APC):

$$APC = \frac{\text{Total Consumption}}{\text{Total Income}} = \frac{C}{Y}$$

$$= \frac{₹3,000}{₹4,000}$$

APC = 0.75

Average Propensity to save (APS):

$$APS = \frac{\text{Total Saving}}{\text{Total Income}} = \frac{S}{Y}$$

$$= \frac{₹1,000}{₹4,000}$$

APS = 0.25

Space to write important points for revision

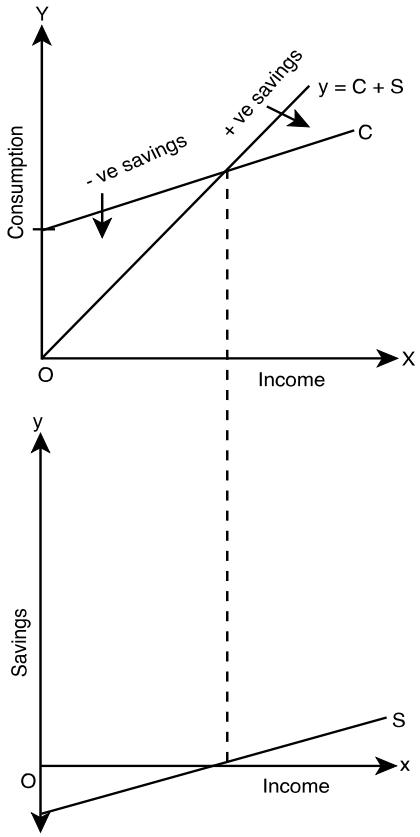
Q.2.2.4	2020 - Nov [9] (b) (ii)	Descriptive
Clarify the concept of 'Average Propensity to Save' with the help of formula and example. (2 marks)		

Answer:

The Ratio of total Saving to total income is called Average Propensity to Save (APS).

Alternatively it is that part of total income which is saved.

$$APS = \frac{\text{Total Savings}}{\text{Total Income}} = \frac{S}{Y}$$



The estimation of APS is illustrated with the help of the following table:

NI (Y) ₹ Crores	Consumption (C) ₹ Crores	Saving (S) ₹ Crores	APS = $\frac{S}{Y}$
0	60	– 60	–
100	140	– 40	– 40/100 = – 0.4
200	220	– 20	– 20/200 = – 0.1

300	300	0	0
400	380	20	20/400 = 0.05
500	460	40	40/500 = 0.08

Space to write important points for revision

Q.2.2.5	2021 - Dec [11] (a)	Descriptive

How is aggregate consumption function affected, if:

(i) An impending war is expected to result in shortage of goods and an adoption of a rationing system,

(ii) Increased cost for steel, oil etc are expected to result in higher prices for consumer goods, or

(iii) The leadership assures that economic policy is bringing the recession to an end. (3 marks)

Answer:

Effect on Aggregate Consumption Function:

(i) If an impending war is expected, it will result in shortage of goods and an adoption of a rationing system is essential. As war happens supply will be less, and demand will be high which will lead to increase in prices thereby reducing the disposable income causing reduction in the aggregate consumption. This will shift the aggregate consumption function downwards.

(ii) The price of goods and services is determined by the interaction of supply and demand of goods and services. If cost of steel and oil prices go up, naturally the producer is not having any incentive to produce at the earlier levels. This reduces the supply in the economy resulting in increased demand and prices will go up causing the aggregate consumption function to decline.

(iii) The leadership is assuring that economic policy is bringing the recession to an end. But economic policies carry a gestation period to become effective and giving both short-term and long-term result. So mere assurance will not increase the aggregate consumption function till the effect is realised by both the producer and consumer and the price level is maintained at an equilibrium level where the consumer can consume at the pre-recession stage and producer too.

Space to write important points for revision

Q.2.2.6	2022 - May [9] (a) (ii)	Descriptive
What is aggregate Demand Function?		(2 marks)

Answer:

Aggregate Demand Function:

Aggregate Demand (AD) is what economists call total planned expenditure. In a simple two - sector economy. The ex-ante aggregate demand (AD) for final goods or aggregate expenditure consists of only two components:

(i) Ex ante aggregate demand for consumer goods (c) and

(ii) Ex ante aggregate demand for Investment goods (I).

$$AD = C + I \quad — \quad (i)$$

Of the two components, consumption expenditure accounts for the highest proportion of the GDP. In a simple economy, the variable I is assumed to be determined exogenously and constant in the short run. Therefore, the short - run aggregate demand function can be written as:

$$AD = C + \bar{I} \quad — \quad (ii)$$

where $\bar{I}$ = Constant Investment

From the equation (ii), we can infer that, in short run, AD depends largely on the aggregate consumption expenditure.

Space to write important points for revision

Q.2.2.7	**2022 - May [10] (b) (i)**	**Practical**

Calculate Multiplier and Marginal Propensity to Consume (MPC) with the help of following information:

Particulars	**2020-21 (₹ in Crore)**	**2021-22 (₹ in Crore)**
Investment	1600	2000
National Income	5000	6600

(3 marks)

Answer:

Calculation of Marginal Propensity to Consume (MPC)

Increase in investment

Ä I = 2,000 – 1,600 = ₹ 400 Crore

Increase in National Income

= Ä Y = 6,600 – 5,000

= ₹ 1,600 Crore

Multiplier $k = \frac{\Delta y}{\Delta I} = \frac{1,600}{400} = 4$

We know that $k = \frac{1}{1 - MPC}$

$$4 = \frac{1}{1 - MPC}$$

$4 (1 – MPC) = 1$

$4 – 4MPC = 1$

$3 = 4MPC$

$MPC = \frac{3}{4} = 0.75$

MPC = 0.75

Q.2.2.8	2022 - Nov [7] {C} (a)	Practical

The equilibrium level of income (Y) of an economy is ₹ 2,000 crores. The autonomous consumption expenditure (a) is equal to ₹ 100 crores and investment expenditure (1) is ₹ 500 crores. You are required to calculate:

(i) Consumption expenditure at equilibrium level of National Income.

(ii) Marginal Propensity to Consume (MPC) and Marginal Propensity to Save (MPS).

(iii) Equilibrium level of income if saving function is S = – 10 + 0.2Y.

(3 marks)

Q.2.2.9	RTP	Descriptive

Define consumption function? Examine what would happen if aggregate expenditure were to exceed the economy's production capacity.

Answer:

Consumption Function:

Consumption function is the functional relationship between aggregate consumption expenditure and aggregate disposable income, expressed as C = f (Y); shows the level of consumption (C) corresponding to each level of disposable income (Y)

Aggregate expenditures in excess of output lead to a higher price level once the economy reaches full employment. Nominal output will increase, but it merely reflects higher prices, rather than additional real output.

Space to write important points for revision

Q.2.2.10	Practice Question	Descriptive

Can value of APC be greater than one? Comment.

Answer:

Average propensity to consume (APC):

The ratio of total consumption expenditure to total income is called APC. It is the percentage (or ratio) of income which is spent on consumption. It is worked out by dividing total consumption expenditure (C) with total income (Y).

Symbolically:

$$APC = C/Y$$

For instance if aggregate income of an economy is ₹ 5,000 crores and aggregate consumption is ₹ 4,500 crores, then:

$APC = \frac{C}{Y} = \frac{4,500}{5,000} = 0.90$ or 90%

It indicates that 90% of income is spent by way of consumption expenditure. But if aggregate income is very low, say ₹ 1,000 crores, and aggregate consumption is ₹ 1,200 crores, the APC = 1,200/1,000 = 1.2.

Thus, the value of APC may be greater than 1 when at very low level of income, consumption exceeds income to meet the very basic necessities. Then saving becomes negative.

Space to write important points for revision

Q.2.2.11	Practice Question	Descriptive
Income and Consumption expenditure are directly related to each other. Do you agree. Give reasons in support of your answer.		

Answer:

Relationship between income and consumption expenditure:

1. **According to Keynes, as income increases, consumption expenditure also increases but by less than the increase in income.**
   In other words, when income increases, consumption expenditure does not increase at the same rate as income. This is called Keynesian psychological law of consumption.
   There is tendency of people not to spend on consumption the whole of incremental income, i.e., additional consumption is less than additional income. In other words, MPC is less than 1 **(MPC < 1)**.
   For example,
   If income increases by ₹ 100; the tendency is to spend a part, say ₹ 75, on consumption and save the remaining part (i.e., ₹ 25). This is known as induced consumption.

It should be kept in mind that when income is zero, consumption is positive (+) because a person has to spend a minimum amount to keep his body and soul together. This is called autonomous consumption.

2. **When income is very low, consumption expenditure is higher than income:**
   Its reason is that some minimum level of consumption has to be maintained irrespective of low level of income. In such a situation, value of APC (i.e., C/Y) becomes higher than 1.

Space to write important points for revision

Q.2.2.12	Practice Question	Descriptive
What is meant by propensity to save (or saving function)? Explain saving function and State relationship between income and saving.		

Answer:

Saving Function:

A person spends a part of his income on consumption and saves the rest. Keynes called the proportion which is consumed as 'Propensity to consume' and proportion which is saved as 'Propensity to save'.

Meaning of 'Saving' Function: The functional relationship between saving and income is called saving function (or propensity to save). In other words, it is proportion of income which is saved. Thus, saving (S) is a function (f) of income (Y).

Algebraically:

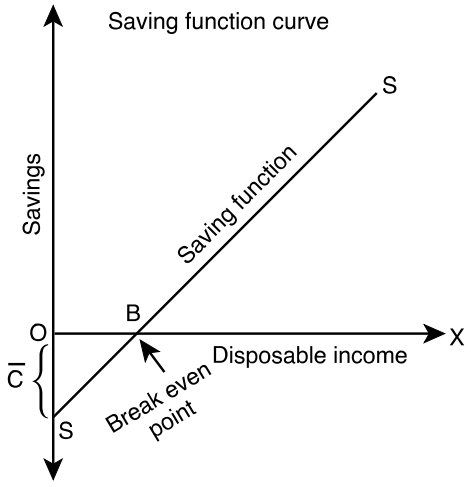
$$S = f(Y)$$

It shows direct relation between saving and level of income. In other words as the level of income increases, saving also increases. Thus, saving function is corollary or reciprocal of consumption function.

Hypothetical Saving Function Schedule

Income Y	Consumption C	Saving S	APS = $\frac{S}{Y}$	MPS = $\frac{\Delta S}{\Delta Y}$
0	30	– 30	–	–
100	100	0	–	–
200	170	30	0.15 (30/200)	0.3 (30/100)
300	240	60	0.20	0.3
400	310	90	0.225	0.3
500	380	120	0.24	0.3

The table shows that in the beginning saving is negative since consumption is never zero. But as income increase, consumption increases less than proportionally. Consequently saving becomes positive and increases at a faster rate than the increase in income.



The above Fig. reflects saving function which relates the level of saving to the level of income. A diagrammatic representation of the relationship between income and saving gives the saving curve. Line SS represents saving function. The saving function line SS crosses the income line at point B which is called breakeven point because at this point savings are zero (or consumption is equal to income). To the left of breakeven point, savings are

negative indicating consumption being more than income whereas to the right of breakeven point, savings are positive indicating consumption expenditure being less than income. The shaded area reflects dissavings which is equal to equal to the area of autonomous consumption shown as $-\overline{C}$ in the fig.

Relationship between Income and Saving:

1. As income increases, saving also increases but the rate of increase in saving is more than the rate of increase in income after a particular level of income. This means that as income increases, the proportion of income saved increases (and the proportion of income consumed decreases).
2. At lower level of incomes, savings is negative. In the stages when there is no income or very low level of income, consumption expenditure is more than income leading to negative saving (i.e., dissaving).For instance, if income is, say ₹ 5,000, and consumption expenditure is, say ₹ 6,000, then saving will ₹1,000 (= 5,000 – 6,000), i.e., there is dissaving. Here average propensity to save is negative. APS = – 1,000/5,000 = – 0.2.

Space to write important points for revision

Q.2.2.13	Practice Question	Descriptive
What is Excess Demand? How does it give rise to Inflationary gap.		

Answer:

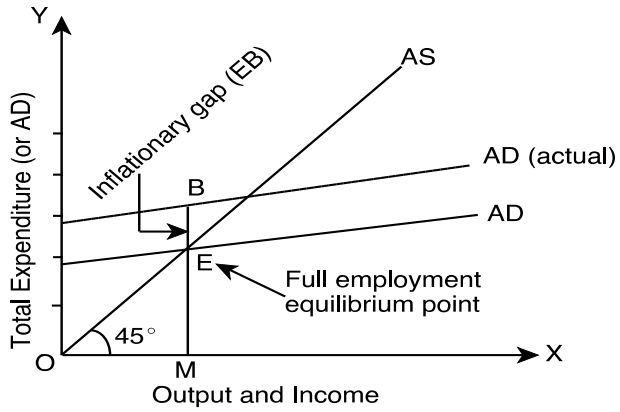
Meaning of Excess Demand:

When in an economy, aggregate demand is for a level of output that is more than the full employment level of output, the demand is said to be an excess demand and the gap is called inflationary gap. In other words, excess demand refers to the excess of aggregate demand over the available output at full employment. The gap is called inflationary because it causes inflation (continuous rise in prices) in the economy. According to Keynes, equilibrium

level of income, output and employment is determined solely by level of aggregate demand during short period.

Inflationary Gap.

When aggregate demand is more than 'level of output at full employment' then the excess or gap is called inflationary gap. Alternatively it is the amount by which actual aggregate demand exceeds the level of aggregate demand required to establish full-employment equilibrium. This inflationary gap is a measure of amount of the excess of aggregate demand. It indicates that the buyers intend to buy more than the maximum physical output the producers can produce by employing all the available resources. In such a situation an increase in demand means only an increase in money expenditure without any corresponding increase in output and employment because all the resources have already been fully employed. A simple example will further clarify it.



Here, point E lying on 45° line is the full employment equilibrium point. This is an ideal situation because aggregate demand represented by EM is equal to full employment level of output (aggregate supply) represented by OM. Suppose the actual aggregate demand is for a level of output BM which is greater than full employment level of output EM (OM). Thus, the difference between the two is EB (BM – EM) which is measure of inflationary gap or excess demand.

In short inflationary gap is the amount by which aggregate demand exceeds the aggregate demand required to establish the full employment equilibrium.
Impact of Excess Demand. Since there is already full capacity production, excess demand does not cause any rise in output and employment but it leads to rise in prices. In such a situation when resources have been fully employed, increase in demand implies pressure on existing supplies of goods causing rise in prices and a situation of inflation. Clearly this is demand pull inflation, i.e., demand induced increase in price level. A persisting rise in general level of prices after full employment is called inflation.
Inflation creates inequalities of distribution of wealth, loss to creditors and salaried people, social unrest and revolt, loss of faith in government and morality. Remember, in such a situation real income (i.e., in terms of physical output) cannot rise but money income (i.e., in terms of money value of physical output) will rise.

Space to write important points for revision

Q.2.2.14	Practice Question	Descriptive
As people become more thrifty, they end up saving less or same as before. Explain Paradox of Thrift in light of the above statement.		

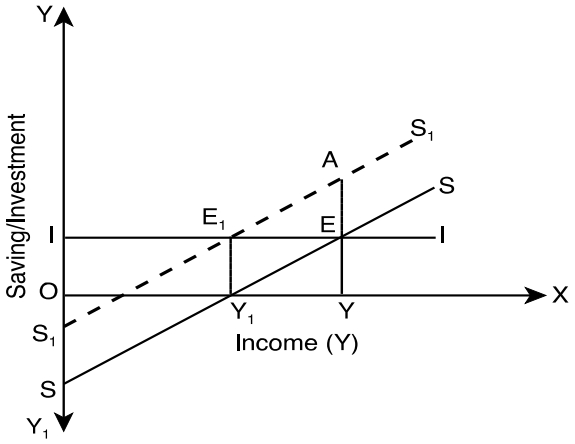
Answer:

Paradox of Thrift

Since start of human civilisation it was considered a virtue to keep consumption level at the minimum but the lasting effects and chain reactions of keeping consumption in check were not realised. People were taught that thrift or savings are good because a penny saved today will bring increased income. In this connection,
Keynes pointed out 'paradox of thrift' and showed that as people become more thrifty, they end up saving less or same as before.

According to Keynes if all the people of an economy increased the proportion of income which is saved (i.e., MPS), the value of savings in the economy will not increase, rather it will decline or remain unchanged.

Let us understand this statement with the help of the diagram given below.



In Figure initial saving curve is SS and investment curve is I.

Economy attains equilibrium (saving = investment) at E and equilibrium level of income is OY.

Now suppose the society decides to become thrifty and increases saving by, say, AE. As a result saving curve shifts upward to S_1S_1 intersecting investment curve II at E_1. Unplanned inventories will increase and firms will cut down production and employment and move to new equilibrium E_1.

The Figure shows that in the end, planned saving has fallen from AY to E_1Y_1. At the new equilibrium point E_1, the investment level and saving remain same i.e., E_1Y_1 but level of income has fallen from OY to OY_1.

This decline in the equilibrium level of income shows the paradox of thrift as the reverse process of the multiplier has worked on reducing consumption expenditure.

In fact, increased saving is virtually a withdrawal from circular flow of income.

Space to write important points for revision

Q.2.2.15	Practice Question	Descriptive
What is Keynes' Psychological Law of Consumption?		

Answer:

Keynes Psychological Law of Consumption:

Keynes' Psychological Law of Consumption states that consumption is a direct function of disposable income.

According to this law, "Society has a tendency to increase its consumption spending whenever income increases but not in that proportion in which income increases."

The law has three basic propositions:

1. When income increases, consumption also increases but by somewhat smaller amount.
2. Net increase in income will be divided between consumption and savings in some ratio.
3. It is unlikely that an increase in income would lead to either fall in consumption or decline in savings.

Space to write important points for revision

Q.2.2.16	Practice Question	Practical
Define saving function. If consumption function is $C = \overline{C} + bY$, find out the corresponding saving function.		

Answer:

Saving function is a functional relationship between savings and income. i.e. it shows that the level of savings depends upon the level of income. It is expressed as:

$S = f(Y)$

S = savings

f = function

Y = income

Derivation of saving function:

$C = \overline{C} + bY$

$S = Y - C$

$S = Y(\overline{C} + bY)$

$= Y - \overline{C} - bY$

$= -\overline{C} + Y - bY$

$S = -\overline{C} + Y(1 - b)$

Space to write important points for revision

Q.2.2.17	Practice Question	Practical

Given that consumption function C = 100 + 0.75Y, find out:

1. Corresponding saving function
2. Level of income at which savings will be zero.
3. If the level of income is ₹ 800, find out the value of consumption and savings.

Answer:

1. $C = 100 + 0.75Y$ ..... (i)

   $C = \overline{C} + bY$ ..... (ii)

   From (i) and (ii)

   $\overline{C} = 100$

   $b = 0.75$

   $S = -\overline{C} + Y(1 - b)$

   $S = -100 + Y(1 - 0.75)$

   $= -100 + 0.25Y$

2. If s = 0

   Then $0 = -100 + 0.25\,Y$

   $\frac{100}{0.25} = Y$

   When income will be ₹ 400, savings will be zero.

3. When Y = 800
   $C = \overline{C} + bY$

Q.2.2.18	Practice Question	Short Notes
Write short note on the concept of Aggregate Demand.		

Answer:

Aggregate Demand:

- Aggregate demand broadly refers to the total demand for goods and services in the economy. Since it is measured by total expenditure of the community on goods and services, therefore, aggregate demand is also defined as "the total amount of money which all sections (households, firms, government) are ready to spend on purchase of goods and services produced in an economy during a given period." Alternatively AD is the total expenditure which the community intends to incur on purchase of goods and services.
- Thus, aggregate demand is synonyms with aggregate expenditure in the economy.
- If the total intended (i.e., ex-ante) expenditure on buying all the output is larger than before, this shows a higher aggregate demand. On the contrary, if the community decides to spend less on the available output, it shows a fall in the aggregate demand.
- In simple words, Aggregate Demand is the total expenditure on consumption and investment. Determination of output and employment in Keynesian framework depends mainly on level of aggregate demand.

Aggregate Demand Function: Two Sector Model

AD = C + I

Aggregate Demand Function: Three Sector Model

AD = C + I + G

Aggregate Demand Function: Four Sector Model

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

Where,

C = Private (household) consumption demand

I = Private investment demand
G = Government demand for goods and services
(X-M) = Net export demand.

2.3 *The Two Sector Model of National Income Determinal*

Q.2.3.1	2018 - Nov [8] (a)	Practical

In a two sector model Economy, the business sector produces 7500 units at an average price of ₹ 7.

(i) What is the money value of output?
(ii) What is the money income of Households?
(iii) If households spend 75% of their income, what is the total consumer expenditure?
(iv) What is the total money revenue received by the business sector?
(v) What should happen to the level of output? (5 marks)

Answer:

(i) The money value of output equals total output times the average price per unit. The money value of output is (7,500 × ₹ 7) = ₹ 52,500
(ii) In a two sector economy, households receive an amount equal to the money value of output. Therefore, the money income of households is the same as the money value of output i.e. ₹ 52,500.
(iii) Total spending by households (₹ 52,500 × 0.75) i.e. ₹ 39,375.
(iv) The total money revenues received by the business sector is equal to aggregate spending by households i.e. ₹ 39,375.
(v) The business sector makes payments of ₹ 52,500 to produce output, whereas the households purchase only worth ₹ 39,375 of what is produced. Therefore, the business sector has unsold inventories valued at ₹ 13,125.
They should be expected to decrease output.

Space to write important points for revision

Q.2.3.2	2021 - Jan [7] {C} (a)	Practical

Given the following equations:
C = 200 + 0.8Y
I = 1200
Calculate equilibrium level of National Income and the Consumption Expenditure at equilibrium level of National Income. (3 marks)

Answer:

Y = C + I
Y = 200 + 0.8 Y + 1200
Y-0.8Y = 1400
0.2Y = 1400
Y = 1400/0.2 = 7000
C = 200+ 0.8 x 7000 = 5800

Space to write important points for revision

Q.2.3.3	2022 - Nov [8] (b) (ii)	Descriptive

Explain briefly the Deflationary Gap. (2 marks)

2.4 *The Investment Multiplier*

Q.2.4.1	2019 - May [10] (b) (ii)	Practical

When investment in an economy increases from ₹ 10,000 crores to ₹ 14,000 crores and as a result of this national income rises from ₹ 80,000 crores to ₹ 92,000 crores, compute investment multiplier. (2 marks)

Answer:

Investment Multiplies (K) = $\frac{\triangle y}{\triangle I}$

Increase in investment = (₹ 14,000 – ₹ 10,000) Cr.
$\triangle I$ = ₹ 4,000 Cr.

Increase in national income ($\triangle y$) = ₹ (92,000 – 80,000) Cr.

$\triangle y$ = ₹ 12,000 Cr.

Investment Multiplier (k) = $\frac{\triangle y}{\triangle I}$

$\therefore$ K = $\frac{₹12,000}{₹4,000}$

Investment Multiplier (k) = 3

Space to write important points for revision

Q.2.4.2	2021 - Jan [9] (a) (ii)	Practical
Due to Recession in an economy, Government expenditure increases by ₹ 6 billion. If Marginal Propensity to Consume (MPC) in the economy is 0.8, compute the increase in GDP. (2 marks)		

Answer:

Change in Income ÷ Change in Expenditure = 1- MPC = 1– 0.8 = 0.2

Change in Income × 0.2 = Change in Expenditure = 6 bn

Change in Income = 6 ÷ 0.2 = 30 bn

Hence the GDP will increase by 30 bn.

Space to write important points for revision

Q.2.4.3	Practice Question	Descriptive
What is the concept of Investment Multiplier		

Answer:

Investment Multiplier:

The concept of 'Investment Multiplier' is an important contribution of Prof. J.M. Keynes. Keynes believed that an initial increment in investment increases the final income by many times. Multiplier expresses the relationship between an initial increment in investment and the resulting increase in aggregate income.

In practice, it is observed that when investment is increased by a certain amount, then the change in income is not restricted to the extent of the initial investment, but it changes several times the change in investment. In other words, change in income is a multiple of the change in investment. Multiplier explains how many times the income increases as a result of an increase in the investment.

Multiplier (k) is the ratio of increase in national income ($\triangle Y$) due to an increase in investment ($\triangle I$).

$$K = \frac{\triangle Y}{\triangle I}$$

Suppose an additional investment ($\triangle I$) of ₹ 4,000 crores in an economy generates an additional income ($\triangle Y$) of ₹ 16,000 crores. The value of multiplier (K), in this case will be:

$$k = \frac{16,000}{4,000} = 4$$

Space to write important points for revision

Q.2.4.4	Practice Question	Descriptive
Explain the relationship between Multiplier and MPC.		

Answer:

Multiplier and MPC

There exists a direct relationship between MPC and the value of multiplier. Higher the MPC, more will be the value of multiplier, and vice-versa.

The concept of multiplier is based on the fact that one person's expenditure is another person's income. When investment is increased, it also increases the income of the people. People spend a part of this increased income on consumption. However, the amount of increased income spent on consumption depends on the value of MPC.

- In case of higher MPC, people will spend a large proportion of their increased income on consumption. In such case, value of multiplier will be more.

- In case of law MPC, people will spend lesser proportion of their increased income consumption. In such case, value of multiplier will be comparatively less.

Thus, the value of multiplier depends upon the MPC.

Space to write important points for revision

Q.2.4.5	Practice Question	Descriptive
What is the maximum and minimum value of multiplier.		

Answer:

Maximum Value of Multiplier

The maximum value of multiplier is infinity when the value of MPC is 1. MPC = 1 indicates that the economy decides to consume the whole of its additional income. Here, not even a bit of the additional income is saved. It will lead to a continuous increase in the consumption expenditure and value of multiplier will be infinity.

Proof:

We know; $k = \frac{1}{1 - MPC}$

When MPC = 1, then:

$k = \frac{1}{1 - 1} = \frac{1}{0} = \infty$ (as any number, when dividend by 0, gives infinity)

Minimum Value of Multiplier

The minimum value of multiplier is one when the value of MPC is zero. MPC =0 indicates that the economy decides to save the whole of its additional income and nothing is spent as consumption expenditure. So, there will be no further increase in income. As a result, the total increase in income ($\triangle Y$) will be equal to the increase in investment ($\triangle I$), i.e., $\triangle Y = \triangle I$. Here, the value of multiplier is equal to 1.

Prof: We know; $k = \frac{1}{1 - MPC}$

When MPC = 0, then:

$k = \frac{1}{1 - 0} = \frac{1}{1} = 1$

2.5 *Determination of Equilibrium Income: Three Sector Model*

Q.2.5.1	RTP	Descriptive
Explain the Three Sector Model of Circular Flow of Income.		

Answer:

Three Sector Model of Circular Flow of Income:

The structure of Macro Economy is given by circular flows of income and output. A three sector model of circular flow of income is characterised by the presence of three sectors namely

- Household sector
- Producer sector (Firms)
- Government

Space to write important points for revision

2.6 *Determination of Equilibrium Income: Four Sector Model*

Q.2.6.1	2018 - May [8] (b) (i)	Descriptive
Explain the Leakages and Injections in circular flow of Income. (2 marks)		

Answer:

Leakages: A leakage is an outflow or withdrawal of income from the circular flow. Leakages are money leaving the circular flow and therefore, not available for spending on currently produced goods and services. Leakages reduce the flow of income.

Injections: An injection is a non-consumption expenditure. It is an expenditure on goods and services produced within the domestic territory but not used by the domestic household for consumption purposes. Injections are exogenous additions to the circular flow and add to the total volume of the basic circular flow.

In the two-sector model with households and firms, household saving is the only leakage and investment is the only injection. In the three-sector model which includes the government, saving and taxes are the two leakages and investment and government purchases are the two injections. In the four-sector model which includes foreign sector also, saving, taxes, and imports are the three leakages; investment, government purchases, and exports are the three injections.

The state of equilibrium occurs when the total leakages are equal to the total injections that occur in the economy.

Savings + Taxes + Imports = Investment + Government Spending + Exports

Space to write important points for revision

Q.2.6.2	2019 - May [7] {C} (a)	Practical
Given Consumption function C = 300 + 0.75Y; Investment = ₹ 800; Net Imports = ₹ 100 Calculate equilibrium level of output.		(3 marks)

Answer:

The equilibrium level of output can be found by equating output and agregate spending

Y = C + I + G + (X – M)

Y = 300 + 0.75Y + 800 – 100

Y = 1,000 + 0.75Y

0.25 Y = 1,000

Y = 4,000

Space to write important points for revision

Q.2.6.3	2022 - Nov [9] (a) (ii)	Descriptive

"Net Exports" can be negative or positive. How is it significant for the economy of a country? (2 marks)

Q.2.6.4	Practice Question, RTP	Practical

For an Economy with the following specifications
Consumption, $C = 50 + 0.75\ Y_d$
Investment, I = 100
Government Expenditure, G = 200
Transfer Payments, R = 110
Income Tax = 0.2Y

(i) Find out the equilibrium of income and the value of expenditure multiplier.
(ii) If autonomous taxes worth ₹ 25 Crores are added. Find out equilibrium level of Income.
(iii) If the economy is opened up with exports X = 25 and imports M = 5 + 0.25Y Calculate the new level of Income and balance of Trade (Assume that there are no autonomous Taxes.)

Answer:

(i) Level of Disposable income Y_d is given by
$Y_d = Y - Tax + transfer\ Payments$, Where, Transfer Payment = 110
$= Y - 0.2Y + 110 = 0.8Y + 110$,
and $C = 50 + 0.75Y_d$
$= 50 + 0.75\ (0.8Y + 110)$ (where $Y_d = 0.8Y + 110$)
$= 50 + (0.75 \times 0.8Y) + (0.75 \times 110) = 132.50 + 0.6Y$
$C = 132.50 + 0.6Y$
Now $Y = C + I + G$, Where $C = 132.50 + 0.6Y$, $I = 100$, $G = 200$ (Given)
$Y = (132.50 + 0.6Y) + 100 + 200$
$= 432.50 + 0.6Y$
$Y - 0.6Y = 0.4Y = 432.50$
or $Y = 432.50/0.4$ = ₹ 1,081.25 Crores

Expenditure Multiplier = $\frac{1}{1 - b} = \frac{1}{1 - 0.6}$ = 2.5 (Multiplier in closed economy = $\frac{1}{1 - b}$)

$$\text{Here } b = \text{MPC} = \frac{\triangle C}{\triangle Y}$$

(ii) If autonomous taxes worth of ₹ 25 Crores added, this will reduce disposable income by ₹ 25 crores
Level of Disposable income Y_d is given by
$Y_d = Y - \text{Tax} + \text{Transfer payments}$
Thus $Y_d = Y - 0.2Y + (110 - 25) = 0.8Y + 85$ (Income Tax Given = 0.2Y, Transfer Payments = 110)
$C = 50 + 0.75 (0.8Y + 85)$ (Given $C = 50 + 0.75Y_d$)
$C = 50 + (0.75 \times 0.8Y) + (0.75 \times 85)$
$= 50 + 0.6Y + 63.75 = 113.75 + 0.6Y$
$Y = C + I + G$
$= (113.75 + 0.6Y) + 100 + 200 = 413.75 + 0.6Y$ (C = 113.75 + 0.6Y, I = 100, G = 200)
$Y - 0.6Y = 413.75$
$0.4Y = 413.75$
$Y = \frac{413.75}{0.4}$ = ₹ 1034.375 Crores.

(iii) $Y = C + I + G + (X - M)$, Where Consumption, (C) = 132.50 + 0.6Y, Investment (I) = 100, Government Expenditure (G) = 200
Since X = 25, M = 5 + 0.25Y
$Y = (132.50 + 0.6Y) + 100 + 200 + \{25 - (5 + 0.25Y)\}$ (Given X = 25 crores and M = (5 + 0.25Y)
$Y = (132.50 + 0.6Y) + 100 + 200 + (25 - 5 - 0.25Y)$
$= (1 - 0.6 + 0.25) Y = 452.50$
$Y = \frac{452.50}{0.65}$ = ₹ 696.15 Crores
Imports = 5 + 0.25Y = 5 + (0.25 × 696.15) = ₹ 179.04 Crores
Balance of trade = Exports – Imports
Balance of Trade = 25 – M = 25 – 179.04 = – ₹ 154.04 crores.

Thus, there is adverse balance in Trade of ₹ 154.04 crores

Space to write important points for revision

Q.2.6.5	Practice Question	Descriptive
Explain the Four Sector Model of Circular Flow of Income.		

Answer:

Four Sector Model of Circular Flow of Income:

A four sector model of circular how of income deals with circular how i.e., money flow as well as real flow amongst the following four sectors.

1. Household sector
2. Producer sector
3. Government sector
4. External sector.

Four Sector Model of Flow of Income represents open economy which includes 'foreign sector or rest of the world'. In modern times, economy adopts the shape of open economy which includes exports and imports of goods and services. When an economy pays for imports, outflow of money takes place from that country to rest of the world and on the contrary when a country receives payment for the exports, inflow of money takes place to that country from rest of the world.

In open economy income flow includes the following five sectors:

(i) Household Sector,
(ii) Business Firm,
(iii) Government Sector,
(iv) Rest of the World Sector,
(v) Capital Market.

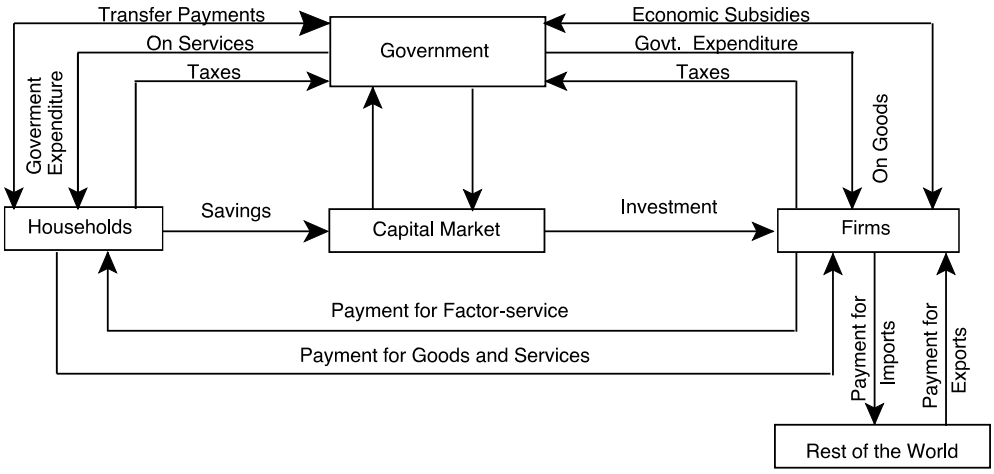
With inclusion of rest of the world sector, import (M) and export (X) also affect the circular flow of income. Imports signify leakages from circular flow while exports indicate injection of income in circular flow.

Condition of Equilibrium:

Four sector economy in its circular flow of income possesses the following equilibrium condition:

$$Y = C + I + G + (X - M)$$

Where, Y = Production or Income
C = Consumption Expenditure
I = Investment Expenditure
G = Government Expenditure
(X - M) = Net Export
(X stands for export and M for import)



Space to write important points for revision

2.7 *Marginal Efficiency of Capital*

Q.2.7.1	Practice Question	Short Notes
Write short note on: Marginal Efficiency of Capital.		

Answer:

Marginal Efficiency of Capital:

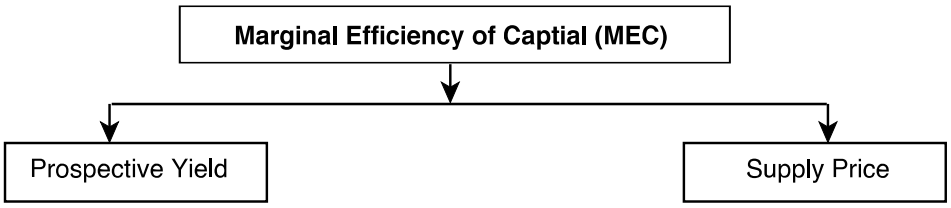
The expected profitability from addition investment is the called Marginal Efficiency of Capital.

In other words, Marginal efficiency of capital is the expected rate of return of an additional unit of capital investment over its cost.

Formula:

$$\textbf{MEC} = \frac{\text{Expected Income (Y)}}{\text{Cost of Supply Price (P)}} \times 100$$

Components of MEC:



Prospective Yield:

The prospective yield of an asset is the aggregate net return expected from it during its whole life. The term 'Net Return' is calculated by deducting present cost of the asset from total yields. Prospective yield can be expressed as follows:

$$P_Y = Q_1 + Q_2 + Q_3 + \ldots\ldots + Q_n$$

Where P_Y represents prospective yield and Q_1 ,Q_2.... Q_n represent net annual returns.

Supply Price:

The expenditure made on capital goods at the time of initial investment is known as supply price. For example, investment made on purchase of new machinery is supply price or cost of investment. It is also known as 'replacement cost'.

Estimation of Marginal Efficiency of Capital :

Having known the values of prospective yield and supply price, marginal efficiency of capital can be estimated as the rate of discount that equates these two values. Thus,

$$\textbf{SP} = \frac{P_{y_1}}{(1+m)} + \frac{P_{y_2}}{(1+m)^2} + \frac{P_{y_3}}{(1+m)^3} + \ldots\ldots\frac{P_{y_n}}{(1+m)^n}$$

Here, SP = Supply Price; P_y = Prospective Yield; m = Marginal Efficiency of Capital.

Q.2.7.2	Practice Question	Short Notes
Write short note on: Relationship between Marginal Efficiency of Capital and Rate of Interest.		

Answer:

Marginal Efficiency of Capital (MEC) is the expected rate of return of an additional unit of capital investment over and above its cost.

According to Keynes, interest is the reward for parting with liquidity for a specified period. Money supply being constant in short period, rate of interest is basically dependent on liquidity preference. Higher the liquidity preference level, more will be the rate of interest.

Relationship between MEC and Rate of Interest:

The decisions of investors are influenced by both (MEC) and rate of interest(r). As long as the MEC is greater than the rate of interest, the investors will be induced to increase investment till the point where MEC becomes equal to rate of interest, i.e., when MEC is equal to rate of interest, the effect on investment will be passive. If MEC is greater than rate of interest, the investor will increase the investment and on the other hand, if MEC is less than rate of interest, investment will be reduced. Thus,

1. **If MEC = r**
   Passive effect on investment (i.e., investment will neither increase nor decrease).
2. **If MEC > r**
   Favourable effect on investment (i.e., investment will be increased).

3. If MEC < r

Adverse effect on investment (i.e., investment will be reduced.)

Space to write important points for revision