Unit 8

Part A

I. Choose the correct answer (each question carries 1 mark)

1. The study of National Income is related to:
   a) Micro economics
   b) Macro Economics
   c) Both Micro and Macro
   d) None of the above
2. NNP = GNP –
   a) Deduction
   b) Depreciation
   c) Investment
   d) None of the above
3. The value of GDP at the current prevailing price is:
   a) Real GDP
   b) GDP at Factor Cost
   c) Nominal GDP
   d) NDP
4. By deducting undistributed profit from national income, we get:
   a) Personal Disposable Income
   b) Personal Income
   c) Private Income
   d) Subsidies
5. Measuring the sum total of all factor payments will be called:
   a) Product method
   b) Expenditure method
   c) Income method
   d) None of the above

II. Fill in the blanks (each question carries 1 mark)

1. ___Stocks_____are defined at a particular point of time.
2. _____Final____ goods will not pass through any more stages of production.
3. _____Depreciation_____ is an annual allowance of wear and tear of capital good.
4. ___Inventory_____ is a stock variable
5. Pollution is an example for __Negative_____ externalities
6. The net contribution made by a firm is called its _value added_____

III. Match the following (each question carries 1 mark)

A	B
1. Labour	a) Non-monetary exchange
2. GDP	b) Personal Disposable Income
3. Inventory	c) Gross Domestic Product
4. PDI	d) Stock Variable
5. Domestic service	e) Wages

A	B
Labour	Wages
GDP	Gross Domestic Product
Inventory	Stock variable
PDI	Personal Disposable Income
Domestic service	Non-monetary exchange

IV. Answer the following questions in a sentence / word (each question carries 1 mark)

1. What do you mean by final goods?

Such an item that is meant for final use and will not pass through any more stages of production or transformations is called a final good.

2. Expand CPI.

Consumer Price Index

3. Expand GNP_{MP}

Gross National Product

4. How do you get net value added?

If we deduct the value of depreciation from gross value added we obtain Net Value Added

5. Give the meaning of GDP

If we sum the gross value added of all the firms of the economy in a year, we get a measure of the value of aggregate amount of goods and services produced by the economy in a year (just as we had done in the wheat-bread example). Such an estimate is called Gross Domestic Product (GDP). Thus GDP ≡ Sum total of gross value added of all the firms in the economy.

6. Give the meaning of intermediate goods

Of the total production taking place in the economy a large number of products don't end up in final consumption and are not capital goods either. Such goods may be used by other producers as material inputs. Examples are steel sheets used for making automobiles and copper used for making utensils. These are intermediate goods

7. What is depreciation?

This deletion, which is made from the value of gross investment in order to accommodate regular wear and tear of capital, is called depreciation.

8. How do we get personal disposable income?

Personal Disposable Income (PDI) ≡ PI – Personal tax payments – Non-tax payments.

9. Write the equation of GVA at market prices.

If we include depreciation in value added then the measure of value added that we obtain is called Gross Value Added

10. What is GDP deflator?

The ratio of nominal to real GDP is a well known index of prices. This is called GDP Deflator

V. Answer the following questions in 4 sentences (Each question carries 2 marks)

1. What are the four factors of production? Mention their rewards.
   a) Land – It denotes the natural resources like air, water, soil, etc. The payment that is paid by the firms to acquire these services is called rent.
   b) Labour – It refers to the physical and mental effort required to do a work. For example, engineer, manager, worker, etc. The payment made to the labour in exchange of his/her services is called as wage.
   c) Capital – It refers to the monetary investments and physical and tangible investments like machinery, buildings, technology, tools, etc, which assists in production process. The payment received in exchange of these services is called interest.
   d) Entrepreneur – It refers to the individual who undertakes the risk to organise the production process. Entrepreneurs are the risk takers and often are the innovators of new techniques. They receive profit in exchange of their entrepreneurship.

2. Distinguish between stock and flow. Give example

Stock		**Flow**	
1.	The variables that are measured at a particular point of time. For example, bank balance as on 1st Oct 2010 is Rs.5000.	1.	The variables that are measured over an interval of time. For example, interest earned on bank deposits for 1 year, i.e. from 1 Oct-2009 to 30 Sep 2010.
2.	It has no time dimensions.	2.	It has time dimensions, like 1 year, 6 months, 10 days, etc.

3.	Examples: Capital, bank deposits, water in a tank.	3.	Examples: Capital formation, interest on capital, water flowing in a stream.

3. What is the difference between consumer goods and capital goods.

Of the final goods, we can distinguish between consumption goods and capital goods. Goods like food and clothing, and services like recreation that are consumed when purchased by their ultimate consumers are called consumption goods or consumer goods.

4. Mention 3 methods of measuring GDP (national income)

The 3 methods are:

a) Product or value added
b) Expenditure method
c) Income method

5. What do you mean by externalities? Mention its two types.

Externalities refer to the benefits (or harms) a firm or an individual causes to another for which they are not paid (or penalised). Externalities do not have any market in which they can be bought and sold. They are of two types:

a) Positive Externalities
b) Negative Externalities

6. Write the equation of GDP_{MP} and GDP_{FC}

GDP at Market Price = GDP at Factor Cost + Indirect Tax – Subsitdies

GDP at Factor Cost = GDP at Market Price - Indirect Tax + Subsitdies

7. Write the difference between nominal and real GDP.

Real GDP is calculated in a way such that the goods and services are evaluated at some constant set of prices (or constant prices). Since these prices remain fixed, if the Real GDP changes we can be sure that it is the volume of production which is undergoing changes. Nominal GDP, on the other hand, is simply the value of GDP at the current prevailing prices.

VI. Answer the following questions in 12 sentences. (Each question carries 4 marks)

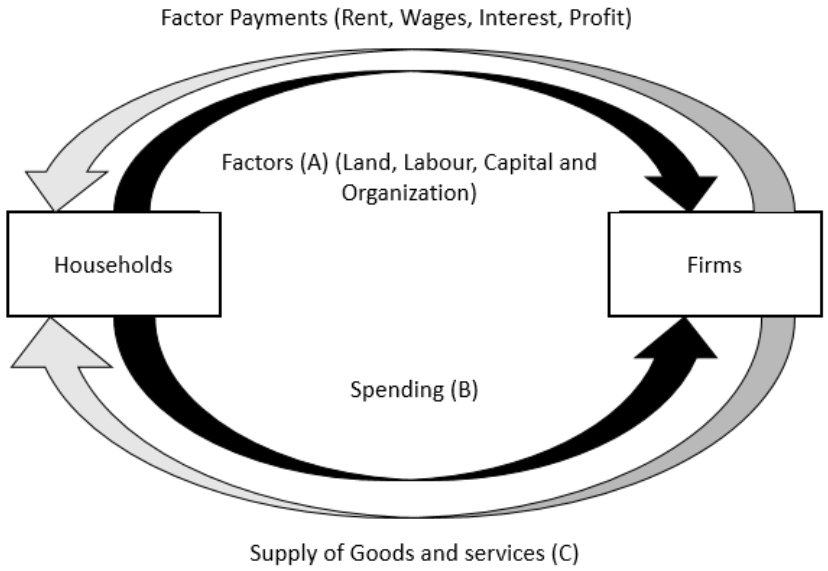
1. Write a short note on the concept of final good

A farmer producing cotton sells it to a spinning mill where the raw cotton undergoes transformation to yarn; the yarn is, in turn, sold to a textile mill where, through the productive process, it is transformed into cloth; the cloth is, in turn, transformed through another productive process into an article of clothing which is then ready to be sold finally to the consumers for final use.

Such an item that is meant for final use and will not pass through any more stages of production or transformations is called a final good

It will not undergo any further transformation at the hands of any producer. It may, however, undergo transformation by the action of the ultimate purchaser. In fact many such final goods are transformed during their consumption.

2. Explain the circular flow of income of an economy.



In the diagram, households supply factors of production such as land, labour, capital and organization to firms. The firms produce goods and services which are supplied to the households. This supply is called real flow. This is represented by the outer circle in grey.

Firms make factor payments such as rent, wages, interest, and profit to households as reward for factor services.

Households spend this income on buying goods and services which are manufactured by the firm. This is money flow. This is represented by the inner circle in black.

Production generates income which is converted to expenditure. Thus, production is continuous because human wants are unlimited. Hence creating the circular flow of income.

We can calculate national income using the points A, B, and C.

a) If we measure the flow at point A, by adding sum of all factor payments it is called Income Method
b) If we measure the flow at point B, by adding aggregate spending on goods and services, it is called Expenditure Method
c) If we measure the aggregate value of final goods and services at point C, it is called Product Method.

3. Write a note on externalities.

Externalities refer to the benefits (or harms) a firm or an individual causes to another for which they are not paid (or penalised). Externalities do not have any market in which they can be bought and sold. For example, let us suppose there is an oil refinery which refines crude petroleum and sells it in the market. The output of the refinery is the amount of oil it refines. We can estimate the value added of the refinery by deducting the value of intermediate goods used by the refinery (crude oil in this case) from the value of its output.

The value added of the refinery will be counted as part of the GDP of the economy. But in carrying out the production the refinery may also be polluting the nearby river. This may cause harm to the people who use the water of the river. Hence their utility will fall.

Pollution may also kill fish or other organisms of the river on which fish survive. As a result the fishermen of the river may be losing their income and utility. Such harmful effects that the refinery is inflicting on others, for which it does not have to bear any cost, are called externalities. In this case, the GDP is not taking into account such negative externalities.

Therefore, if we take GDP as a measure of welfare of the economy, we shall be overestimating the actual welfare. This was an example of negative externality. There can be cases of positive externalities as well. In such cases GDP will underestimate the actual welfare of the economy.

4. Illustrate unplanned accumulation and decumulation of inventories with an example.

Change in inventories may be planned or unplanned. In case of an unexpected fall in sales, the firm will have unsold stock of goods which it had not anticipated. Hence there will be unplanned accumulation of inventories. In the opposite case where there is unexpected rise in the sales there will be unplanned decumulation of inventories.

This can be illustrated with the help of the following example. Suppose a firm manufactures shirts. It starts the year with an inventory of 100 shirts. During the coming year it expects to sell 1,000 shirts. Hence it produces 1,000 shirts, expecting to keep an inventory of 100 at the end of the year. However, during the year, the sales of shirts turn out to be unexpectedly low.

The firm is able to sell only 600 shirts. This means that the firm is left with 400 unsold shirts. The firm ends the year with 400 + 100 = 500 shirts. The unexpected

rise of inventories by 400 will be an example of unplanned accumulation of inventories. If, on the other hand, the sales had been more than 1,000 we would have unplanned decumulation of inventories.

For example, if the sales had been 1,050, then not only the production of 1,000 shirts will be sold, the firm will have to sell 50 shirts out of the inventory. These 50 unexpected reductions in inventories is an example of unexpected decumulation of inventories.

5. Explain the examples of planned accumulation and decumulation of inventories.

Suppose the firm wants to raise the inventories from 100 shirts to 200 shirts during the year. Expecting sales of 1,000 shirts during the year (as before), the firm produces 1000 + 100 = 1,100 shirts. If the sales are actually 1,000 shirts, then the firm indeed ends up with a rise of inventories.

The new stock of inventories is 200 shirts, which was indeed planned by the firm. This rise is an example of planned accumulation of inventories. On the other hand if the firm had wanted to reduce the inventories from 100 to 25 (say), then it would produce 1000 – 75 = 925 shirts.

This is because it plans to sell 75 shirts out of the inventory of 100 shirts it started with (so that the inventory at the end of the year becomes 100 – 75 = 25 shirts, which the firm wants). If the sales indeed turn out to be 1000 as expected by the firm, the firm will be left with the planned, reduced inventory of 25 shirts.

VII. Answer the following questions in 20 sentences. (each question carries 6 marks)

1. Explain the macroeconomic identities.

GDP (Gross Domestic Product): The most important concept of national income is Gross Domestic Product. Gross domestic product is the money value of all final goods and services produced within the domestic territory of a country during a year.

GDP=C+I+G+net X

C = gross final consumption expenditure

I = gross private sector investment

G = government consumption and expenditure

net X = net exports where value of exports is greater than value of imports

NDP (Net Domestic Product): It is the aggregate money value of all goods and services produced in a country minus depreciation. In the production process, capital assets may depreciate and need to be replaced.

NDP=C+I+G+net X-DC

NDP=GDP-DC

DC = depreciation cost.

GNP (Gross National Product): Gross National Product is the total market value of all final goods and services produced annually in a country plus net factor income from abroad. Thus, GNP is the total measure of the flow of goods and services at market value resulting from current production during a year in a country including net factor income from abroad. The GNP can be expressed as the following equation:

GNP=C+I+G+(X-M)+(R-P)

R – P = net income earned by individuals abroad, it is difference between income from abroad (R) and income paid to foreigners (P)

NNP (Net National Product): Net National Product is the market value of all final goods and services after allowing for depreciation. It is also called National Income at market price. When charges for depreciation are deducted from the gross national product, we get it. Thus,

NNP=C+I+G+(X-M)+(R-P)

NNP=GNP-DC

PI (Personal Income): Personal Income is the total money income received by individuals and households of a country from all possible sources before direct taxes. Therefore, personal income can be expressed as follows:

PI=National Income-undistributed corporate profit-corporate income taxes-social security contributions+transfer payments

PDI (Personal Disposable Income): The income left after the payment of direct taxes from personal income is called Disposable Income. Disposable income means actual income which can be spent on consumption by individuals and families. Thus, it can be expressed as:

PDI=PI-Personal Taxes

Nominal National Income and Real National Income: When national income is expressed in prices prevailing in the year in which it is calculated is called nominal national income. When national income is expressed in terms of base year prices (constant price) it is called real national income.

Per Capita Income: It is the average income of the people of a country. That is, average income per head of population of a country.

Per Capita Income=(National Income of a Country)/(Total Population)

2. Briefly explain the expenditure method of measuring GDP

GDP ≡ Sum total of revenues that firms earn

Or

GDP ≡ Total consumption + Investment + Government Consumption expenditure + Net exports

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

As households spend some part of their income on imports, some portion of consumption expenditure also comprises of imports, which are denoted by C_M. Similarly, some part of the investment expenditure and government consumption expenditure is spent on the foreign investment goods and imports.

These portions of investment and government consumption expenditure are denoted by I_M and G_M respectively. Thus, the final households' consumption expenditure, investment expenditure and final government expenditure that are spent on the domestic firms are denoted by $C - C_M$, $I - I_M$ and $G - G_M$ respectively.

Substituting these values in the above equation

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

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

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

3. Explain a numerical example to show that all the 3 methods of estimating GDP give us the same answer.

a) Product Method

The farmers had produced Rs 100 worth of wheat for which it did not need assistance of any inputs. Therefore the entire Rs 100 is rightfully the contribution of the farmers. But the same is not true for the bakers. The bakers had to buy Rs 50 worth of wheat to produce their bread. The Rs 200 worth of bread that they have produced is not entirely their own contribution. To calculate the net contribution of the bakers, we need to subtract the value of the wheat that they have bought from the farmers. If we do not do this we shall commit the mistake of 'double counting'. This is because Rs 50 worth of wheat will be counted twice. First

it will be counted as part of the output produced by the farmers. Second time, it will be counted as the imputed value of wheat in the bread produced by the bakers. Therefore, the net contribution made by the bakers is, Rs 200 – Rs 50 = Rs 150. Hence, aggregate value of goods produced by this simple economy is Rs 100 (net contribution by the farmers) + Rs 150 (net contribution by the bakers) = Rs 250.

b) Expenditure Method

In this method we add the final expenditures that each firm makes. Final expenditure is that part of expenditure which is undertaken not for intermediate purposes. The Rs 50 worth of wheat which the bakers buy from the farmers counts as intermediate goods, hence it does not fall under the category of final expenditure. Therefore, the aggregate value of output of the economy is Rs 200 (final expenditure received by the baker) + Rs 50 (final expenditure received by the farmer) = Rs 250 per year.

c) Income Method

As we mentioned in the beginning, the sum of final expenditures in the economy must be equal to the incomes received by all the factors of production taken together (final expenditure is the spending on final goods, it does not include spending on intermediate goods). This follows from the simple idea that the revenues earned by all the firms put together must be distributed among the factors of production as salaries, wages, profits, interest earnings and rents

In this case the producer of wheat makes Rs. 100 as the income from the sale of the wheat. The baker makes Rs. 150 from the sale of bread. Rs. 50 is the expenditure incurred in making bread by the baker. Thus, the net income here tallies to Rs. 250

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

Distribution of GDP – how uniform is it: If the GDP of the country is rising, the welfare may not rise therefore. This is because the rise in GDP may be concentrated in the hands of very few individuals or firms. For the rest, the income may in fact have fallen. In such a case the welfare of the entire country cannot be said to have increased. For example, suppose in year 2000, an imaginary country had 100 individuals each earning Rs 10.

Therefore the GDP of the country was Rs 1,000 (by income method). In 2001, let us suppose the same country had 90 individuals earning Rs 9 each, and the rest 10 individual earning Rs 20 each. Suppose there had been no change in the prices of goods and services between these two periods. The GDP of the country in the year 2001 was 90 × (Rs 9) + 10 × (Rs 20) = Rs 810 + Rs 200 = Rs 1,010. Observe that compared to 2000, the GDP of the country in 2001 was higher by Rs10.

But this has happened when 90 per cent of people of the country have seen a drop in their real income by 10 per cent (from Rs 10 to Rs 9), whereas only 10 per cent have benefited by a rise in their income by 100 per cent (from Rs 10 to Rs 20). 90 per cent of the people are worse off though the GDP of the country has gone up. If we relate welfare improvement in the country to the percentage of people who are better off, then surely GDP is not a good index.

Non-monetary exchanges: Many activities in an economy are not evaluated in monetary terms. For example, the domestic services women perform at home are not paid for. The exchanges which take place in the informal sector without the help of money are called barter exchanges. In barter exchanges goods (or services) are directly exchanged against each other.

But since money is not being used here, these exchanges are not registered as part of economic activity. In developing countries, where many remote regions are underdeveloped, these kinds of exchanges do take place, but they are generally not counted in the GDPs of these countries. This is a case of underestimation of GDP. Hence GDP calculated in the standard manner may not give us a clear indication of the productive activity and well-being of a country.

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