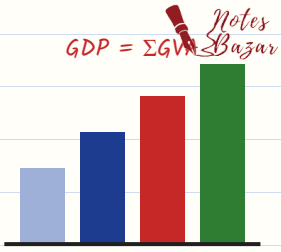
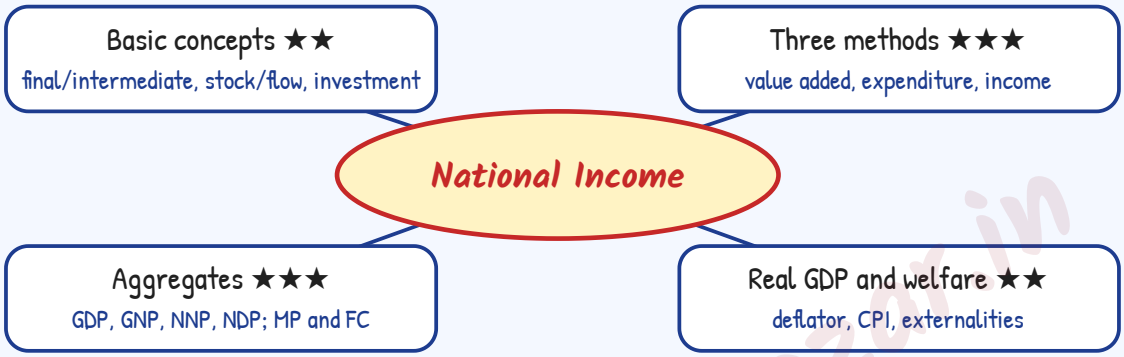
Class 12 · Economics · Chapter 2

Chapter 2 National Income Accounting



NCERT Introductory Macroeconomics (Chapter 2), Reprint 2026-27 · CBSE board 2027

Chapter map (★ = asked in almost every CBSE paper 2024–2026)



What is inside

1. Concept notes with all formulas and worked numericals (p. 2–8)
2. NCERT exercises (all 12), fully solved (p. 9–21)
3. CBSE PYQs 2024–2026, fully solved (p. 22–22)
4. Quick-reference sheet; practice A–G, 20 MCQs, 6 A–R, answers, summary (p. 23–27)

Colour code used

red = key term green = definition
purple = sub-heading black = explanation
★ = high-frequency board topic
= mark the examiner gives for that point

★ **Exam tip:** This is the highest-weight macro chapter: every paper has a 3, 4 or 6-mark national income numerical, plus questions on real GDP, externalities and the treatment of items. Every one of them is solved here with the formula written first, as the marking scheme expects.

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Based on NCERT Introductory Macroeconomics (2026-27), Chapter 2. All answers written by us. Board questions are quoted from the CBSE papers named in each tag; every answer checked against the CBSE marking schemes.

2.1 Some basic concepts of macroeconomics ★★

A nation's wealth does not depend on mere possession of resources (resource-rich Africa and Latin America have some of the poorest countries) but on how resources are used to generate a **flow of production**, and through it income.

Final and intermediate goods

Final good: a good meant for final use, which will not pass through any more stages of production or transformation by a producer. Once sold it passes out of the active economic flow. It may be transformed by the ultimate purchaser (tea leaves into tea at home), but cooking at home is not an economic activity.

Intermediate goods: goods used by producers as material inputs (raw material) for producing other goods, or bought for resale, during the year. E.g. steel sheets for cars, copper for utensils, cotton → yarn → cloth.

> **"It is not the nature of the good but the economic nature of its use that makes it final."** Tea leaves bought by a household: final. The same tea leaves bought by a restaurant: intermediate (value is still added to them).

Kinds of final goods

1. **Consumption goods**: food, clothing, recreation services; consumed when bought by the ultimate consumers. **Consumer durables** (TV, car, home computer) are consumption goods with a long life; like machines they need repair and replacement.
2. **Capital goods**: durable tools, implements, machines used in production; they make production possible but are not transformed in it; they suffer wear and tear and are gradually replaced.

Why count only final goods?

The value of final goods already includes the value of the intermediate goods used to make them. Counting intermediate goods separately would count the same value twice: the error of **double counting**, which exaggerates output. The common measuring rod is **money** (we cannot add metres of cloth to tonnes of rice).

Stocks and flows ★

stock	flow
measured **at a point of time**	measured **over a period of time**
no time dimension	has a time dimension (per year, per month)
capital, wealth, money supply, inventory, population, foreign exchange reserves	income, output, investment, depreciation, change in inventory, exports, consumption

A **change in a stock** over a period is a flow (machines added this year). Water in a tank is a stock; water flowing in per minute is a flow.

Investment and depreciation

Gross investment: the part of final output that comprises capital goods (machines, buildings, roads, bridges, airports) produced in the year, including replacement.

Depreciation (consumption of fixed capital): the annual allowance for normal wear and tear of capital = cost of the good ÷ years of useful life. It excludes unexpected destruction (accidents, calamities). It is an accounting concept: no actual expenditure may occur each year.

Net investment = Gross investment – Depreciation

Net investment (capital formation) is the **new addition** to the capital stock. Economists' investment is always **capital formation**, never the purchase of shares, property or insurance.

The time trade-off

Given total output, more capital goods means fewer consumer goods **now**; but more capital raises labour's productivity, so total output and consumer goods are higher **in future**. No contradiction: the difference is time.

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2.2 Circular flow; 2.2.1 the product (value added) method ★★★

In a simple economy (no government, trade or saving) households receive **wages** (labour), **interest** (capital), **profit** (entrepreneurship) and **rent** (land) from firms and spend all of it on firms' goods. The whole income comes back to firms as sales revenue: **no leakage**. Year after year income moves round the two sectors (diagram: Chapter 1, p. 4).

The flow can be measured at three points: **A** spending received by firms (**expenditure method**), **B** value of final goods produced (**product method**), **C** factor payments (**income method**). All give the same value, however complex the economy.

> ★ ***Exam tip:*** If households spend more (say by borrowing), firms produce more and pay more to factors; income rises exactly by the extra spending. A single household cannot do this: the economy as a whole differs from an individual agent. A simplified story of this kind is a **macroeconomic model**.

Value added: the farmer–baker example

Item	Farmer	Baker
Total production	100	200
Intermediate goods used	0	50
Value added	**100**	**200 − 50 = 150**

Adding outputs (100 + 200 = 300) counts the ₹ 50 of wheat twice. The correct aggregate = 100 + 150 = **₹ 250**.

Value added = value of production of a firm − value of intermediate goods used. It is distributed as wages, interest, profit and rent, and is a flow.

GVA = value of output − intermediate consumption; NVA = GVA − depreciation

Example: output 100, intermediate goods 20, depreciation 10 ⟶ GVA 80, NVA 70.

Inventories ★

Inventory: the stock of unsold finished goods, semi-finished goods or raw materials that a firm carries from one year to the next. It is a stock; the **change in inventories** is a flow and is treated as **investment**.

Change in inventories ≡ production − sales

Opening stock 100, production 1,000, sales 800 ⟶ change +200, closing stock 300.

planned	*unplanned*
firm intends it: wants stock to rise from 100 to 200 shirts, so produces 1,100 expecting sales of 1,000	caused by unexpected sales: produces 1,000 expecting to sell 1,000 but sells 600 ⟶ unplanned accumulation of 400; sells 1,050 ⟶ unplanned decumulation of 50

Three categories of investment: (1) rise in inventories; (2) **fixed business investment** (machinery, factory buildings, equipment); (3) **residential investment** (housing). Public investment by the government (roads, dams, flyovers) is the fourth component in the board's data.

$GVA_i \equiv$ sales V_i + change in inventories A_i − intermediate goods Z_i

Sales include exports. Summing over all N firms: **GDP** $\equiv \Sigma GVA_i$.

> ✗ ***Don't do this:*** Board numerical: **value of output = sales + change in stock** (closing − opening). Purchase of raw materials and power are intermediate consumption; purchase of machinery is **not** (it is investment).

Precautions: value added method

1. avoid double counting: take only value added (or final goods);
2. exclude **sale of second-hand goods** (counted when first produced); but the broker's commission is included;
3. include **production for self-consumption** (own-account production, imputed rent of owner-occupied houses);
4. exclude services of housewives (no market value, data difficulty).

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2.2.2 Expenditure method; 2.2.3 income method ★★★

Expenditure method (demand side)

Add the **final expenditures** received by firms. In the farmer–baker case: bread 200 + wheat not sold to the baker 50 = **₹ 250** (the ₹ 50 of wheat bought by the baker is intermediate).

A firm's revenue from final expenditure: C_i (consumption, mostly by households), I_i (investment by other firms on its capital goods), G_i (government's consumption and investment), X_i (exports). Part of C, I and G is spent on imports (C_m, I_m, G_m):

$$\Sigma RV_i \equiv (C - C_m) + (I - I_m) + (G - G_m) + X \equiv C + I + G + X - M$$

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

Investment (I) is the most unstable component. In board data: GDP_{MP} = PFCE + GFCE + GDCF + net exports, where **GDCF = GDFCF + change in stock** (gross fixed: business, residential and public).

Precautions: expenditure method

1. exclude expenditure on **intermediate goods**;
2. exclude **transfer payments** (old-age pension, scholarship, unemployment allowance): no good or service produced in return;
3. exclude expenditure on **second-hand goods** and on **financial assets** (shares, bonds): no current production;
4. include imputed expenditure on own-account production.

Income method (distribution side)

Revenues of firms are distributed as wages and salaries (W), profits (P), interest (In) and rent (R):

$$GDP \equiv W + P + In + R$$

$$GDP \equiv \Sigma GVA_i \equiv C + I + G + X - M \equiv W + P + In + R$$

(I includes planned and unplanned investment.)

Worked example: firms A and B

Item	Firm A	Firm B	Total
Sales	50	200	
Intermediate consumption	0	50	
Value added	**50**	**150**	**200**
Wages	20	60	80
Profits	30	90	120

Value added method: 50 + 150 = 200. Expenditure method: final expenditure on cloth = 200. Income method: wages 80 + profits 120 = 200. All three: **GDP = ₹ 200**.

Factor incomes in board data

head	includes
compensation of employees	wages and salaries (cash and kind), employer's contribution to social security
operating surplus	rent + royalty + interest + profit (dividend + corporate tax + undistributed profit)
mixed income of self-employed	income of own-account workers (labour and capital not separable)

NDP_{FC} = COE + operating surplus + mixed income

Precautions: income method

1. exclude **transfer incomes** (gifts, pensions, scholarships, lottery prizes);
2. exclude income from sale of **second-hand goods** and of **financial assets**;
3. include income from own-account production and imputed rent;
4. exclude **windfall gains**; interest on loans for consumption is not factor income.

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2.2.4 Factor cost and market prices; 2.3 identities ★★★

Production taxes/subsidies are paid or received in relation to production, independent of its volume (land revenue, stamp and registration fee). **Product taxes/subsidies** are per unit of product (excise, GST, export and import duties).

GVA at factor cost + net production taxes = GVA at basic prices

GVA at basic prices + net product taxes = GVA at market prices (= GDP)

Since January 2015 the CSO publishes **GVA at basic prices** and **GDP** (at market prices) as headline measures. For the board: **MP = FC + net indirect taxes (NIT = indirect taxes − subsidies)**.

Domestic and national

Domestic product: value of final goods and services produced within the **domestic territory** of a country in a year, by residents and non-residents. **National product**: produced by the **normal residents** of a country, within or outside the domestic territory.

NFIA = factor income earned by domestic factors employed in the rest of the world − factor income earned by factors of the rest of the world employed in the domestic economy. (An Indian working in Saudi Arabia: part of Saudi GDP but of India's GNP; profits of Hyundai's Indian factory are deducted from India's GNP.)

GNP = GDP + NFIA; NNP = GNP − depreciation

National income NI = NNP_{FC} = NNP_{MP} − (indirect taxes − subsidies)

Personal and disposable income

PI = NI − undistributed profits − net interest paid by households − corporate tax + transfer payments to households

PDI = PI − personal tax payments − non-tax payments (fines)

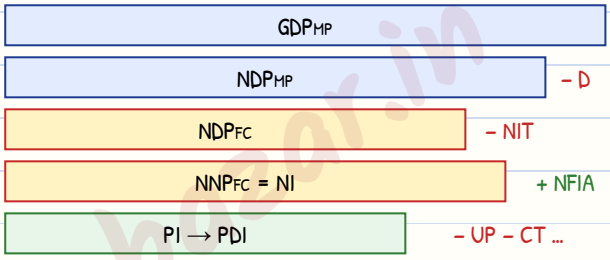
PDI belongs to households: they consume part and save the rest.

National disposable income = NNP_{MP} + other current transfers from the rest of the world

Private income = factor income from NDP accruing to private sector + national debt interest + NFIA + current transfers from govt + other net transfers from abroad

The aggregates (Table 2.4)

aggregate	formula
GDP_{MP}	C + I + G + X − M
GDP_{FC}	GDP_{MP} − NIT
NDP_{MP}	GDP_{MP} − depreciation
NDP_{FC} (domestic income)	NDP_{MP} − NIT
GNP_{MP}	GDP_{MP} + NFIA
GNP_{FC}	GNP_{MP} − NIT
NNP_{MP}	GNP_{MP} − depreciation = NDP_{MP} + NFIA
NNP_{FC} = NI	NNP_{MP} − NIT = NDP_{FC} + NFIA



From GDP_{MP} to personal disposable income (NFIA shown positive)

✗ Don't do this: Three board rules: (1) **gross − depreciation = net**; (2) **MP − NIT = FC**; (3) **domestic + NFIA = national**. "Net factor income *paid* to abroad" means NFIA is **negative**.

Worked numerical

GDP_{MP} 1,000; depreciation 100; indirect taxes 120; subsidies 20; NFIA −30. NDP_{MP} = 900; NDP_{FC} = 900 − (120 − 20) = 800; NI = 800 + (−30) = **770**.

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2.4 Nominal and real GDP; 2.5 GDP and welfare ★★

If GDP doubles, output may have doubled, or only prices may have doubled. To compare GDP across years or countries we use real GDP.

Nominal GDP: GDP at current (prevailing) prices. **Real GDP**: GDP at constant prices of a **base year**; it changes only when the volume of production changes.

Year	Output (bread)	Price (₹)	Nominal GDP	Real GDP (2000 prices)
2000 (base)	100	10	1,000	1,000
2001	110	15	1,650	1,100

GDP deflator = nominal GDP ÷ real GDP (× 100 in %)

2001: 1,650 ÷ 1,100 = 1.50 = **150%**: the price of bread is 1.5 times the base-year price. A deflator below 100 means prices have fallen. A GNP deflator is defined in the same way.

Consumer Price Index (CPI)

CPI: index of prices of a given basket of commodities bought by a representative consumer = cost of the basket in the current year ÷ cost in the base year × 100.

Good	Quantity	2000 price	2000 cost	2005 price	2005 cost
Rice (kg)	90	10	900	15	1,350
Cloth (pieces)	5	100	500	120	600
Total			**1,400**		**1,950**

CPI (2005) = 1,950 ÷ 1,400 × 100 = **139.29**.

WPI: index of wholesale prices (goods traded in bulk, raw materials, semi-finished goods); called the Producer Price Index in the USA. Retail and wholesale prices differ by traders' margins.

CPI versus GDP deflator

1. consumer goods are not all goods produced; the deflator covers all goods and services;
2. CPI includes prices of **imported** goods consumed; the deflator does not;
3. CPI weights are **constant**; deflator weights change with each good's production.

2.5 Why GDP is not an index of welfare ★★

Higher income lets people buy more, so higher real GDP is tempting as a welfare index. Three reasons it may not be:

1. Distribution of GDP. A rise in GDP may be concentrated in a few hands while most people are worse off.

Year	People and income	GDP
2000	100 people × ₹ 10	₹ 1,000
2001	90 × ₹ 9 + 10 × ₹ 20	₹ 1,010

GDP rose by ₹ 10, yet 90% of people lost 10% of their income: welfare fell for most.

2. Non-monetary exchanges. Domestic services of women at home and **barter exchanges** in the informal sector are not valued in money, so they are not counted: GDP is **underestimated**, especially in developing countries.

3. Externalities. Benefits (or harms) a firm or individual causes to others for which they are not paid (or penalised); they have no market. An oil refinery's value added enters GDP, but it pollutes a river, harming users and killing fish (fishermen lose livelihood). GDP ignores this **negative externality**, so it **overestimates** welfare. With **positive externalities** (a garden that delights neighbours, a flyover that saves commuters' time) GDP **underestimates** welfare.

✗ ***Don't do this:*** Board phrasing: "GDP and welfare are directly related" is only partly true. Welfare also depends on the **composition** of GDP (more weapons and fewer consumer goods) and on **population** (per-capita real income).

★ ***Exam tip:*** Real GDP versus nominal: always say "real GDP changes **only** with physical output; nominal GDP changes with output and/or prices".

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NCERT exercises, fully solved

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

Ans.

Factor	Remuneration
Land (fixed natural resources)	rent
Labour	wages (and salaries)
Capital	interest
Entrepreneurship	profit

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

Ans. Final expenditure is spending on final goods and services, which is received by firms as their revenue. The revenue earned by all firms together must be distributed among the factors of production as wages, rent, interest and profit (profit being the residual left after paying the other factors). In the simple circular flow, households spend their entire factor income on the firms' output and firms pay out all their revenue as factor payments, so there is no leakage. Hence aggregate final expenditure = aggregate value of final output = aggregate factor payments.

3. Distinguish between stock and flow. Between net investment and capital which is a stock and which is a flow? Compare net investment and capital with flow of water into a tank.

Ans. A **stock** is measured at a point of time (no time dimension), e.g. capital, wealth. A **flow** is measured over a period of time, e.g. income, output.
Capital is a stock (the machines and buildings existing on a date); **net investment is a flow** (the addition to capital during a year).
The water in the tank at a moment is like capital (stock); the water flowing in per minute from the tap is like net investment (flow), which raises the level of water (capital) over time.

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

Ans. **Planned** accumulation is a rise in inventories the firm intends: e.g. it wants stock to rise from 100 to 200 shirts and produces 1,100 expecting sales of 1,000. **Unplanned** accumulation is caused by an unexpected fall in sales: it produces 1,000 expecting to sell 1,000, sells only 600, and is left with an unintended extra 400 shirts.
Relation: change in inventories ≡ production − sales; production ≡ value added + intermediate goods used, so
change in inventories ≡ value added + intermediate goods − sales, i.e. **value added ≡ sales + change in inventories − intermediate goods.**

5. Write down the three identities of calculating the GDP of a country by the three methods. Also briefly explain why each of these should give us the same value of GDP.

Ans. Product method: GDP ≡ ΣGVA_i (sum of gross value added of all firms).
Expenditure method: GDP ≡ C + I + G + X − M.
Income method: GDP ≡ W + P + In + R.
They are the same because they measure the same circular flow at three points: the value of final output produced (value added) is sold to final buyers (so it equals final expenditure), and the revenue from these sales is distributed among the factors as wages, profit, interest and rent (so it equals factor incomes).

6. Define budget deficit and trade deficit. The excess of private investment over saving of a country in a particular year was ₹ 2,000 crores. The amount of budget deficit was (−) ₹ 1,500 crores. What was the volume of trade deficit of that country?

Ans. **Budget deficit** = government expenditure − tax revenue (G − T). **Trade deficit** = imports − exports (M − X).
Y = C + I + G + X − M and Y = C + S + T give S + T = I + G + X − M, so
M − X = (I − S) + (G − T) = 2,000 + (−1,500) = **₹ 500 crores** (trade deficit).

7. Suppose the GDP at market price of a country in a particular year was ₹ 1,100 crores. Net Factor Income from Abroad was ₹ 100 crores. The value of Indirect taxes − Subsidies was ₹ 150 crores and National Income was ₹ 850 crores. Calculate the aggregate value of depreciation.

Ans. NI = GDP_{MP} + NFIA − depreciation − NIT
850 = 1,100 + 100 − D − 150
D = 1,050 − 850 = **₹ 200 crores.**

8. NNP at factor cost of a country is ₹ 1,900 crores. There are no interest payments by households to firms/government or vice versa. PDI of households is ₹ 1,200 crores, personal income taxes paid are ₹ 600 crores and retained earnings of firms and government are ₹ 200 crores. What is the value of transfer payments made by government and firms to households?

Ans. PI = PDI + personal taxes = 1,200 + 600 = 1,800.
PI = NI − retained earnings − net interest paid by households − corporate tax + transfers
1,800 = 1,900 − 200 − 0 − 0 + transfers
Transfers = 1,800 − 1,700 = **₹ 100 crores** (corporate tax is not given, so taken as nil).

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9. Calculate Personal Income and Personal Disposable Income (₹ crore): (a) NDP at factor cost 8,000 (b) NFIA 200 (c) undisbursed profit 1,000 (d) corporate tax 500 (e) interest received by households 1,500 (f) interest paid by households 1,200 (g) transfer income 300 (h) personal tax 500.

> **Ans.** NI = NDP_{FC} + NFIA = 8,000 + 200 = 8,200.
> Net interest paid by households = 1,200 – 1,500 = –300.
> PI = NI – undisbursed profit – corporate tax – net interest paid by households + transfer income
> = 8,200 – 1,000 – 500 – (–300) + 300 = **₹ 7,300 crores.**
> PDI = PI – personal tax = 7,300 – 500 = **₹ 6,800 crores.**

10. In a single day Raju, the barber, collects ₹ 500 from haircuts; his equipment depreciates by ₹ 50. Of the remaining ₹ 450, he pays sales tax ₹ 30, takes home ₹ 200 and retains ₹ 220 for improvement and new equipment. He pays ₹ 20 as income tax from his income. Find Raju's contribution to (a) GDP (b) NNP at market price (c) NNP at factor cost (d) personal income (e) personal disposable income.

> **Ans.** (a) GDP = value of output = **₹ 500** (no intermediate goods).
> (b) NNP_{MP} = 500 – depreciation 50 = **₹ 450.**
> (c) NNP_{FC} = 450 – sales tax 30 = **₹ 420.**
> (d) PI = 420 – retained earnings 220 = **₹ 200.**
> (e) PDI = 200 – income tax 20 = **₹ 180.**

11. Nominal GNP was ₹ 2,500 crores; GNP of the same year at base-year prices was ₹ 3,000 crores. Calculate the GNP deflator in percentage terms. Has the price level risen between the base year and this year?

> **Ans.** GNP deflator = nominal GNP ÷ real GNP × 100 = 2,500 ÷ 3,000 × 100 = **83.33%.**
> It is below 100, so the price level has **fallen** (by about 16.67%) since the base year; it has not risen.

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

> **Ans.** (1) **Distribution of GDP**: GDP may rise while income is concentrated in a few hands and most people become worse off (e.g. GDP rising from 1,000 to 1,010 while 90% of people lose 10% of income).
> (2) **Non-monetary exchanges**: housework and barter exchanges are not counted, so GDP underestimates economic activity and well-being.
> (3) **Externalities**: harms such as pollution by a refinery are not deducted (GDP overestimates welfare); benefits such as a public park are not added (GDP underestimates welfare).
> Also: composition of GDP (defence goods versus consumer goods) and changes in population and prices (use real per-capita GDP).

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CBSE board questions 2024–2026, fully solved

Every question on this chapter from the 16 papers (sets 58/1/1 to 58/7/1, 2024–2026), quoted with complete answers. Circular-flow questions are in Chapter 1.

A. MCQs and Assertion–Reason (1 mark each)

CBSE 2024 · 58/1/1 Identify the correct equation: (A) GDP_{MP} = NNP_{FC} + Depreciation (B) NDP_{FC} = NNP_{FC} + Net Indirect Taxes (C) GNP_{MP} = GDP_{MP} + Net Factor Income from Abroad (D) NNP_{FC} = NDP_{MP} + Depreciation [1]

> **Ans.** National product = domestic product + NFIA; so GNP_{MP} = GDP_{MP} + NFIA. (A) also needs NIT and NFIA; (B) and (D) are wrong. **(C)**

CBSE 2024 · 58/2/1 Statement 1: Economic territory and political frontier of a nation are one and the same thing. Statement 2: The American Embassy in India is a part of the economic territory of India. (A) 1 true, 2 false (B) 1 false, 2 true (C) both true (D) both false [1]

> **Ans.** Economic (domestic) territory is wider than the political frontier: it includes embassies abroad, ships and aircraft operated by residents, etc. The American Embassy in India is part of the economic territory of the USA, not India. Both statements are false. **(D)**

CBSE 2024 · 58/3/1 Identify the incorrect statement with reference to an economy: (A) Excess of GNP over GDP is possible (B) Excess of GDP over GNP is possible (C) Equality between GNP and GDP is possible (D) Sum of GNP and GDP is always equal to zero [1]

> **Ans.** GNP = GDP + NFIA: GNP > GDP when NFIA is positive, < when negative, and equal when NFIA = 0. Their sum is never zero. **(D)**

CBSE 2024 · 58/4/1 Assertion (A): Real GDP is a better indicator of economic growth than nominal GDP. Reason (R): Real GDP measures the value of goods and services at current year prices. (A) Both true, R explains A (B) Both true, R does not explain A (C) A true, R false (D) A false, R true [1]

> **Ans.** A is true. Real GDP is valued at base year (constant) prices; current prices give nominal GDP, so R is false. **(C)**

CBSE 2024 · 58/5/1 Which of the following is not a normal resident of India? (A) An Indian citizen working in the USA embassy in New Delhi (B) Indian officials working in the Indian embassy in China (C) Indian diplomats visiting Canada for a summit (D) An Indian working in an American company in New York for more than one year [1]

> **Ans.** A person living abroad for more than a year with his centre of economic interest there becomes a normal resident of that country. Embassy staff and short visitors remain normal residents of their own country. **(D)**

CBSE 2025 · 58/1/1 Choose the correct pair: (a) Income from property – (i) old-age pension; (b) Income from entrepreneurship – (ii) profit; (c) Mixed income – (iii) rent-free accommodation from an employer; (d) Compensation of employees – (iv) interest from capital. (A) (a)–(i) (B) (b)–(ii) (C) (c)–(iii) (D) (d)–(iv) [1]

> **Ans.** Profit is income from entrepreneurship. Pension is a transfer; rent-free accommodation is compensation of employees (in kind); interest is income from property. **(B)**

CBSE 2025 · 58/2/1 Value added = _____ – value of intermediate consumption. (i) domestic sales (ii) sales – change in stock (iii) value of output (iv) number of units produced × price per unit. (A) (i) and (ii) (B) (ii) and (iii) (C) (ii), (iii) and (iv) (D) (iii) and (iv) [1]

> **Ans.** Value of output = quantity × price = sales + change in stock. So (iii) and (iv). **(D)**

CBSE 2025 · 58/4/1 To arrive at GVA_{FC}, _____ must be _____ to/from GVA_{MP}. (A) depreciation, added (B) depreciation, subtracted (C) net indirect taxes, added (D) net indirect taxes, subtracted [1]

> **Ans.** Factor cost = market price – net indirect taxes. **(D)**

CBSE 2025 · 58/5/1 To arrive at NVA_{MP}, _____ must be _____ to/from GVA_{MP}. (A) depreciation, added (B) depreciation, subtracted (C) net indirect taxes, subtracted (D) net indirect taxes, added [1]

> **Ans.** Net = gross – depreciation. **(B)**

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CBSE 2025 · S8/6/I Which item will not be included in estimating the national income of India? (A) salary to Indian residents working at the Russian Embassy in India (B) income from smuggling (C) payments to farm workers in the form of food grains (D) interest paid by a firm to a bank [1]

> **Ans.** Illegal activities like smuggling are not counted. (A) is factor income from abroad of residents; (C) is compensation in kind; (D) is a factor payment for production. **(B)**

CBSE 2025 · S8/7/I Complete the table: 2014-15 (base): nominal GDP 6.5, real GDP (i), GDP deflator 100; 2016-17: nominal GDP 9, real GDP 7.2, GDP deflator (ii). (A) 125, 100 (B) 125, 110 (C) 6.5, 125 (D) 100, 6.5 [1]

> **Ans.** (i) In the base year real GDP = nominal GDP = 6.5. (ii) Deflator = 9 ÷ 7.2 × 100 = 125. **(C)**

CBSE 2026 · S8/1/I Exclusion of _____ may lead to underestimation of GDP: (i) barter transactions (ii) services provided by family members (iii) illegal activities (iv) depreciation of assets. (A) (i) and (ii) (B) (ii) and (iii) (C) (iii) and (iv) (D) (i), (ii) and (iii) [1]

> **Ans.** Barter and unpaid family services are genuine production left out of GDP because they are non-monetary, so GDP is underestimated. Illegal activities are deliberately excluded; depreciation is part of GDP. **(A)**

CBSE 2026 · S8/1/I Statement 1: Final goods are those goods which normally lose their identity in the production process. Statement 2: Final goods may get transformed during the consumption process by a consumer. (A) 1 true, 2 false (B) 1 false, 2 true (C) both true (D) both false [1]

> **Ans.** Goods that lose their identity in production are intermediate goods; final goods do not undergo further production, though they may be transformed while being consumed (e.g. a consumer cooking vegetables). **(B)**

CBSE 2026 · S8/2/I Income generated by aircraft of Air India operating between Canada and England would be added to the domestic income of _____. (A) Canada (B) England (C) both Canada and England (D) India [1]

> **Ans.** Ships and aircraft operated by residents between two or more countries are part of the domestic (economic) territory of the operating country. **(D)**

CBSE 2026 · S8/2/I Read the flow chart (goods → producer goods → single-use producer goods / _____) and choose the correct option: (A) transfer goods (B) capital goods (C) non-durable goods (D) semi-durable goods [1]

> **Ans.** Producer goods are single-use (intermediate goods) or durable-use (capital goods). **(B)**

CBSE 2026 · S8/2/I Statement 1: Brokerage earned by a dealer of second-hand cars is included in national income. Statement 2: Imputed value of production for self-consumption is included. (A) 1 true, 2 false (B) 1 false, 2 true (C) both true (D) both false [1]

> **Ans.** Brokerage is payment for a current service; own-account production is part of output. Both true. **(C)**

CBSE 2026 · S8/3/I Identify the variable(s) that may add to the future productive capacity of an economy: I. raw material II. fixed investment III. inventories with producers. (A) only I (B) only II (C) II and III (D) I, II and III [1]

> **Ans.** Fixed investment (machinery, buildings) adds to productive capacity; raw materials and inventories are used up or sold. **(B)**

CBSE 2026 · S8/3/I From the table (farmer: production 100, intermediate consumption 0, value added 100; baker: production 200, intermediate consumption 50, value added (i)), estimate the value added by the baker. (A) 200 (B) 250 (C) 100 (D) 150 [1]

> **Ans.** Value added = 200 − 50 = 150. **(D)**

CBSE 2026 · S8/4/I To arrive at National Income (NNP_{FC}), _____ must be added to _____ at factor cost. (A) depreciation, NDP (B) depreciation, GDP (C) NFIA, NDP (D) net indirect taxes, GDP [1]

> **Ans.** $NNP_{FC} = NDP_{FC} + NFIA$. **(C)**

CBSE 2026 · S8/5/I "MoSPI is revising the base year of GDP to better capture structural changes; the proposed new base year is 2022-23." The step is for revision of _____ GDP, as it is measured at _____ prices. (A) real, constant (B) nominal, current (C) real, current (D) nominal, constant [1]

> **Ans.** A base year matters only for GDP at base-year prices. **(A)** real, constant.

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CBSE 2026 · 58/5/1 Arrange the steps of the value added method: (i) calculate NDP_{FC} by subtracting depreciation and NIT from GDP_{MP} (ii) estimate GDP_{MP} by adding GVA of each firm (iii) add NFIA to NDP_{FC} to get NNP_{FC} (iv) identify and classify production units into sectors. (A) ii, iii, i, iv (B) iv, ii, i, iii (C) iv, ii, iii, i (D) iii, iv, ii, i [1]

Ans. Classify → GVA → NDP_{FC} → NNP_{FC}. **(B)**

CBSE 2026 · 58/5/1 Statement I: Positive externalities refer to benefits a firm/individual provides to another for which they are paid. Statement II: In case of positive externalities, GDP might overestimate the actual welfare. (A) I true, II false (B) I false, II true (C) both true (D) both false [1]

Ans. Externalities are **not** paid for; with positive externalities GDP **underestimates** welfare. **(D)**

B. Short answer (3 marks)

CBSE 2024 · 58/1/1 Estimate Net Domestic Product at Factor Cost (₹ crore): (i) Gross domestic fixed capital formation 200 (ii) Exports 50 (iii) Government final consumption expenditure 320 (iv) Consumption of fixed capital 35 (v) Household final consumption expenditure 470 (vi) Inventory investment (net) (−)40 (vii) Imports 60 (viii) Net indirect taxes 50 (ix) Net factor income from abroad 20 [3]

Ans. Expenditure method. NDP_{FC} = PFCE + GFCE + GDFCF + change in stock + (exports − imports) − consumption of fixed capital − net indirect taxes
= 470 + 320 + 200 + (−40) + (50 − 60) − 35 − 50
= 940 − 35 − 50 = **₹ 855 crore**. (NFIA is not used for a domestic aggregate.)

CBSE 2024 · 58/2/1 Estimate Gross National Product at Factor Cost (₹ crore): (i) wages and salaries 2,000 (ii) rent and interest 700 (iii) corporate tax 500 (iv) undistributed profit 300 (v) consumption of fixed capital 200 (vi) dividend 150 (vii) net factor income from abroad (−)50 [3]

Ans. Income method. Profit = corporate tax + dividend + undistributed profit = 500 + 150 + 300 = 950.
NDP_{FC} = wages 2,000 + rent and interest 700 + profit 950 = 3,650.
GNP_{FC} = NDP_{FC} + consumption of fixed capital + NFIA = 3,650 + 200 + (−50) = **₹ 3,800 crore**.

CBSE 2024 · 58/1/1 (OR) (i) Elaborate the concept of externalities with the help of a suitable example. (ii) Define operating surplus. [3]

Ans. (i) **Externalities** are the benefits or harms caused by one person or firm to others, for which the latter are not paid or penalised. Positive externality: a newly developed public park in a colony raises the welfare of residents, who do not pay for it. Negative externality: a factory polluting a river harms people downstream without paying for the damage. Since such effects are not valued in money, they are not included in GDP, so GDP is not a perfect index of welfare.
(ii) **Operating surplus** is the factor income earned in the form of rent (including royalty), interest and profit, i.e. income from property and entrepreneurship.

CBSE 2024 · 58/3/1 Estimate National Income (₹ crore): (i) government final consumption expenditure 110 (ii) private final consumption expenditure 200 (iii) gross domestic fixed capital formation 30 (iv) net exports (−)40 (v) increase in stock 20 (vi) consumption of fixed capital 15 (vii) indirect taxes 60 (viii) subsidies 15 (ix) NFIA (−)40 [3]

Ans. NNP_{FC} = PFCE + GFCE + GDFCF + change in stock + net exports − CFC − (indirect taxes − subsidies) + NFIA
= 200 + 110 + 30 + 20 + (−40) − 15 − (60 − 15) + (−40)
= 320 − 15 − 45 − 40 = **₹ 220 crore**.

CBSE 2024 · 58/3/1 (OR) State any three precautions to be taken while estimating national income by the expenditure method. [3]

Ans. (1) **Expenditure on intermediate goods** should not be included, only final expenditure, to avoid double counting. (2) **Expenditure on second-hand goods** should not be included, as they were counted when first produced (the dealer's commission is included). (3) **Expenditure on financial assets** (shares, bonds, debentures) should not be included, as it is only a transfer of ownership. (Also: transfer payments such as old-age pensions and scholarships are excluded; imputed value of own-account production is included.)

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CBSE 2024 · S8/4/I Estimate NNP_{FC} (₹ crore): (i) household consumption expenditure 1,200 (ii) business fixed investment 800 (iii) government final consumption expenditure 500 (iv) excess of imports over exports 100 (v) net indirect taxes 150 (vi) change in inventory (–)50 (vii) consumption of fixed capital 200 (viii) NFIA 80 (ix) public fixed investment 70 [3]

Ans. GDP_{MP} = 1,200 + 500 + 800 + 70 + (–50) – 100 = 2,420.
NNP_{FC} = GDP_{MP} – CFC – NIT + NFIA = 2,420 – 200 – 150 + 80 = **₹ 2,150 crore.**

CBSE 2024 · S8/5/I Calculate net value added at factor cost (₹ lakh): (i) fixed capital goods 15 (expected life 5 years) (ii) domestic sales 200 (iii) change in stock (–)10 (iv) exports 10 (v) single-use producer goods 120 (vi) net indirect taxes 20 [3]

Ans. Depreciation = 15 ÷ 5 = 3.
Value of output = domestic sales + exports + change in stock = 200 + 10 + (–10) = 200.
GVA_{MP} = 200 – intermediate consumption (single-use producer goods) 120 = 80.
NVA_{FC} = 80 – depreciation 3 – NIT 20 = **₹ 57 lakh.**

CBSE 2024 · S8/5/I (OR) Estimate net indirect taxes (₹ crore): (i) NNP_{MP} 1,400 (ii) NFIA (–)20 (iii) GNP_{FC} 1,300 (iv) consumption of fixed capital 100 [3]

Ans. NNP_{FC} = GNP_{FC} – CFC = 1,300 – 100 = 1,200.
NIT = NNP_{MP} – NNP_{FC} = 1,400 – 1,200 = **₹ 200 crore.**
(NFIA is not needed: both aggregates are national.)

CBSE 2025 · S8/1/I Calculate net value added at factor cost (₹ crore): (i) operating surplus 3,740 (ii) increase in unsold stock 600 (iii) sales 10,625 (iv) purchase of raw materials 2,625 (v) consumption of fixed capital 500 (vi) subsidies 400 (vii) indirect taxes 1,200 [3]

Ans. Value of output = sales + change in stock = 10,625 + 600 = 11,225.
GVA_{MP} = 11,225 – raw materials 2,625 = 8,600.
NVA_{FC} = 8,600 – CFC 500 – (indirect taxes 1,200 – subsidies 400) = 8,600 – 500 – 800 = **₹ 7,300 crore.**
(Operating surplus is not needed.)

CBSE 2025 · S8/1/I (OR) Distinguish between net factor income from abroad (NFIA) and net exports (X – M). [3]

Ans. **NFIA** = factor income received from the rest of the world (wages, rent, interest, profit earned by residents abroad) – factor income paid to the rest of the world; it is the difference between national and domestic income. **Net exports** = value of exports of goods and services – value of imports of goods and services; it is a component of final expenditure (GDP). NFIA relates to factor incomes; net exports relate to goods and services.

CBSE 2025 · S8/2/I State the meaning and significance of the GDP deflator. [3]

Ans. **GDP deflator** = (nominal GDP ÷ real GDP) × 100: the ratio of GDP at current prices to GDP at base-year prices. **Significance**: it shows the change in the general price level of all goods and services produced in the economy; dividing nominal GDP by it removes the effect of price changes, so the real change in physical output can be found. It thus helps to compare the real growth rate of the economy over years. (Unlike CPI, it covers all domestically produced goods, including capital goods, and excludes imports.)

CBSE 2025 · S8/4/I Explain any two precautions for the expenditure method of estimating national income. [3]

Ans. (1) **Exclude intermediate expenditure**: only final consumption and investment expenditure are counted; including intermediate goods would cause double counting. (2) **Exclude second-hand goods**: their value was counted when they were produced; they add nothing to the current flow of goods (only the dealer's commission is counted). (Also: exclude financial assets and transfer payments; include imputed own-account production.)

CBSE 2025 · S8/4/I (OR) From the data (₹ crore): nominal GDP 2020-21 3,000, 2022-23 4,000; nominal GDP adjusted to base-year prices 5,000 and 6,000, calculate the percentage change in real GDP in 2022-23 with 2020-21 as base year. [3]

Ans. GDP adjusted to base-year prices is real GDP: 5,000 (2020-21) and 6,000 (2022-23).
% change in real GDP = (6,000 – 5,000) ÷ 5,000 × 100 = **20%.**

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CBSE 2025 · S8/5/I State the steps for estimating national income by the income method. [3]

Ans. (1) Identify and classify the producing units into primary, secondary and tertiary sectors. (2) Estimate the factor incomes paid by each sector, classified as compensation of employees, operating surplus (rent, interest, profit) and mixed income; their sum gives each sector's contribution to domestic income (NDP_{FC}). (3) Add the net factor income from abroad to get national income (NNP_{FC}).

CBSE 2025 · S8/5/I (OR) Nominal GDP: 2020-21 ₹ 3,000 crore, 2022-23 ₹ 4,000 crore; nominal GDP adjusted to base-year prices: ₹ 5,000 crore and ₹ 6,000 crore. Calculate the percentage change in real GDP in 2022-23 (base 2020-21). [3]

Ans. Real GDP = GDP at base-year prices: 5,000 and 6,000. % change = (6,000 − 5,000)/5,000 × 100 = **20%**.

CBSE 2025 · S8/6/I Calculate domestic income (NDP_{FC}) (₹ lakh): (i) GNP_{MP} 2,500 (ii) consumption of fixed capital 200 (iii) GST 20 (iv) subsidies 50 (v) NFIA 50 (vi) changes in stock 30 (vii) unexpected loss of a fixed asset 500 [3]

Ans. NDP_{FC} = GNP_{MP} − CFC − NFIA − (indirect taxes − subsidies)
= 2,500 − 200 − 50 − (20 − 50) = 2,250 + 30 = **₹ 2,280 lakh**.
(Change in stock is already part of GNP; the unexpected loss of an asset is a capital loss, not part of depreciation.)

CBSE 2025 · S8/6/I (OR) Define net factor income from abroad (NFIA) and discuss its components. [3]

Ans. NFIA = factor income received by residents from the rest of the world − factor income paid to non-residents. Components: (1) **net compensation of employees**: compensation earned by residents working abroad (for a short period) − compensation paid to non-residents working in the domestic territory; (2) **net income from property and entrepreneurship**: rent, interest and profit (dividends) received from abroad − similar payments to non-residents; (3) **net retained earnings**: retained earnings of resident companies abroad − retained earnings of foreign companies operating in the domestic territory.

CBSE 2025 · S8/7/I Calculate the value of sales (₹ lakh): (i) subsidies 200 (ii) operating surplus 500 (iii) opening stock 100 (iv) closing stock 600 (v) intermediate consumption 3,000 (vi) consumption of fixed capital ₹00 (vii) profits ₹50 (viii) NVA_{FC} 2,000 [3]

Ans. NVA_{FC} = sales + change in stock − intermediate consumption − CFC + subsidies.
2,000 = sales + (600 − 100) − 3,000 − ₹00 + 200
Sales = 2,000 − 500 + 3,000 + ₹00 − 200 = **₹ 5,000 lakh**.

CBSE 2025 · S8/7/I (OR) State and explain any two precautions while estimating national income by the income method. [3]

Ans. (1) **Transfer incomes are excluded** (old-age pension, scholarships, gifts): they are unilateral and not earned for any productive service. (2) **Income from the sale of second-hand goods is excluded**, as no current production takes place (only the broker's commission is included). (Also: windfall gains like lottery income and capital gains are excluded; imputed rent of owner-occupied houses is included.)

CBSE 2026 · S8/1/I Meera refers to the increase in GDP at current prices; Shahid insists on GDP adjusted for inflation. Which is the better indicator of welfare, and why? [3]

Ans. GDP adjusted for inflation, i.e. **real GDP**, is the better measure. Real GDP is valued at base-year prices, so it changes only when physical output changes; it removes the effect of price changes and shows the real growth of goods and services available to people. Nominal GDP (at current prices) can rise merely because prices rise, even if output does not, so it can overstate well-being.

CBSE 2026 · S8/1/I (OR) Ravi says the money received from the sale of an old car should be included in national income; Harry disagrees. They also differ on the brokerage paid to the car dealer. As their teacher, state the treatments with reasons. [3]

Ans. Harry is correct. The **sale of an old car is not included** in national income, because its value was counted in the year it was produced; it is only a transfer of ownership and adds nothing to the current flow of goods and services. The **brokerage (commission) paid to the dealer is included**, because it is a payment for a productive service rendered in the current year.

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CBSE 2026 · 58/2/1 Calculate compensation of employees (₹ crore): (i) interest 45 (ii) profit after tax 20 (iii) consumption of fixed capital 50 (iv) GDP_{MP} 200 (v) rent 25 (vi) corporate tax 5 (vii) GST 10 [3]

Ans. $NDP_{FC} = GDP_{MP} - CFC - \text{net indirect taxes (GST)} = 200 - 50 - 10 = 140$.
NDP_{FC} = COE + rent + interest + profit (corporate tax + profit after tax)
140 = COE + 25 + 45 + 5 + 20, so COE = **₹ 45 crore**.

CBSE 2026 · 58/3/1 State the meaning and any two components of gross domestic capital formation. [3]

Ans. **Gross domestic capital formation** (gross investment) is the addition to the capital stock of the economy during a year, including the replacement of wear and tear (depreciation) of the capital stock.
Components: (1) **gross domestic fixed capital formation**: expenditure on fixed assets such as machinery, buildings and roads (business, residential and public); (2) **inventory investment**: change in stocks of raw materials, semi-finished and finished goods.

CBSE 2026 · 58/3/1 (OR) "It is not the nature of a good, but the economic nature of its use, which determines whether it is a final good or not." Justify. [3]

Ans. The same good can be final or intermediate. A good sold to the final user (consumer or investor) crosses the production boundary; any transformation afterwards by the purchaser (e.g. a household cooking vegetables) is non-economic, so it is a **final good**. If the same good is bought for further production or resale within the year (vegetables bought by a restaurant), value is still to be added, so it is an **intermediate good**. Hence the use, not the nature, decides.

CBSE 2026 · 58/4/1 (OR) Explain any two precautions to be kept in mind while estimating national income by the income method. [3]

Ans. (1) **Income from the sale of financial assets** (shares, bonds) is not included: such transactions are mere paper claims and do not add to the current flow of goods and services. (2) **Transfer incomes** (old-age pension, scholarships, gifts) are not included: they are not earned through any productive activity and are unilateral. (Also: windfall gains such as lottery prizes and income from the sale of second-hand goods are excluded.)

CBSE 2026 · 58/4/1 Estimate GDP_{FC} (₹ crore): (i) private final consumption expenditure 800 (ii) government final consumption expenditure 700 (iii) net imports 200 (iv) gross public investment 100 (v) inventory investment 50 (vi) gross residential construction investment 300 (vii) net indirect taxes 70 (viii) gross business fixed investment 130 (ix) consumption of fixed capital 20 (x) interest 150 (xi) net factor income paid to abroad 100 [3]

Ans. GDP_{MP} = PFCE + GFCE + gross investment − net imports = 800 + 700 + (100 + 50 + 300 + 130) − 200 = **₹ 1,880 crore**.
$GDP_{FC} = GDP_{MP} - NIT = 1,880 - 70 =$ **₹ 1,810 crore**.
(CFC, interest and NFIA are not needed: investment is already gross and the aggregate is domestic.)

CBSE 2026 · 58/5/1 Estimate income from property and entrepreneurship (₹ crore): (i) wages and salaries 1,300 (ii) rent 700 (iii) employer's contribution to social security 300 (iv) royalty 200 (v) corporate tax 100 (vi) interest 350 (vii) consumption of fixed capital 50 (viii) dividends 150 (ix) savings of private corporate sector 200 [3]

Ans. Income from property and entrepreneurship = rent + royalty + interest + profit (corporate tax + dividends + undistributed profits) = 700 + 200 + 350 + (100 + 150 + 200) = **₹ 1,700 crore**. (Wages and employer's contribution are compensation of employees; CFC is not a factor income.)

C. Long answer I (4 marks)

CBSE 2025 · 58/2/1 Justify with valid arguments: (i) Money supply is an example of a stock variable. (ii) The central bank provides several banking services to the government. [4]

Ans. (i) A stock is measured at a point of time. Money supply is the total volume of money (currency and deposits) held by the public at a particular point of time (e.g. on 31 March), so it is a stock variable.
(ii) As banker to the government, the central bank maintains the government's accounts, accepts receipts and makes payments on its behalf, carries out exchange, remittance and other banking operations, gives loans and advances to meet temporary needs, and manages public debt.

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CBSE 2026 · S8/1/1 Two firms X and Y have equal gross value added. Estimate the domestic sales of both (₹ crore): (i) value of output of Y ₹700 (ii) purchases by X from Y 200 (iii) exports by X 100 (iv) purchases by Y from X 150 (v) addition to stock of X 50. [4]

Ans. GVA of Y = value of output − intermediate consumption = ₹700 − 150 = 550. With no exports or stock change for Y, its domestic sales = its output = **₹ 700 crore**.
GVA of X = GVA of Y = 550. Value of output of X = GVA + intermediate consumption = 550 + 200 = ₹750. Output = domestic sales + exports + change in stock, so domestic sales of X = ₹750 − 100 − 50 = **₹ 600 crore**.

CBSE 2026 · S8/1/1 (OR) Ms Reeta D'Costa retired as an Income Tax Commissioner in 2023. Besides her pension she receives rent from a flat she owns, interest on fixed deposits and money sent by her children settled abroad. Classify her incomes into factor and transfer income with reasons. [4]

Ans. **Factor income**: (1) rent from her flat (income from property); (2) interest on fixed deposits (income from capital); (3) retirement pension (a deferred payment for services rendered while in service, part of compensation of employees). Factor income is earned by rendering factor services. **Transfer income**: money sent by her children abroad: it is received without rendering any productive service in return.

CBSE 2026 · S8/2/1 "A country's national income at the end of the year is ₹ 80,000 crore. During the year GDP increased by ₹ 10,000 crore. Depreciation on capital goods was ₹ 2,000 crore and national savings at the end of the year were ₹ 15,000 crore. The country invested ₹ 8,000 crore in new capital goods industries." Categorise the items as stock or flow with reasons. [4]

Ans. As the question is framed, **national savings at the end of the year** (accumulated savings at a point of time) is treated as a **stock**. **Flows**: national income, GDP, depreciation, and investment in new capital goods: each is measured over the year. A stock is measured at a point of time; a flow is measured over a period of time. (Saving during a year would be a flow.)

CBSE 2026 · S8/2/1 (OR) Nominal GNP was ₹ 2,500 crore; GNP at base-year prices was ₹ 3,000 crore. (i) Estimate the GNP deflator (%). (ii) "The price level has risen between the base year and the current year." Defend or refute. [4]

Ans. (i) GNP deflator = nominal GNP ÷ real GNP × 100 = 2,500 ÷ 3,000 × 100 = **83.33**.
(ii) **Refuted.** A deflator below 100 means current prices are lower than base-year prices: the price level has **fallen** by about 16.67% (100 − 83.33).

CBSE 2026 · S8/5/1 Tech Info Ltd buys machinery from Germany to make printers, which are sold to households and dealers at home and abroad. "The machinery purchased and printers manufactured, both are final goods." Do you agree? [4]

Ans. **No (only partly). Final goods**: the machinery (bought for investment, a capital good) and printers sold to households (consumption). **Intermediate good**: printers sold to dealers, since they are bought for resale in the same year. Final goods are used for consumption or investment; intermediate goods are used for further production or resale within the year.

CBSE 2026 · S8/5/1 (OR) (i) Define gross investment. (ii) Identify two components of gross investment shown in the image (a flyover under construction and a residential housing complex). (iii) Explain any one component. (Visually impaired: explain any two components of gross investment.) [4]

Ans. (i) **Gross investment** is the addition to the capital stock including the replacement of wear and tear (depreciation).
(ii) **Gross public investment** (flyover) and **gross residential construction investment** (houses).
(iii) **Gross public investment**: government expenditure on creating fixed assets such as flyovers, roads and dams. **Gross residential construction investment**: investment in constructing residential houses and buildings by households. (Others: business fixed investment, inventory investment.)

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D. Long answer II (6 marks)

CBSE 2024 · 58/2/II Read the text on externalities and carbon pricing ("carbon pricing tries to control greenhouse gas emissions by placing a fee on emitting or offering subsidies on lesser emission, through carbon tax, green cess, eco tax..."). (i) Define externalities. (ii) Differentiate between positive and negative externalities. (iii) Elaborate how and why carbon pricing should be promoted. [6]

Ans. (i) Externalities are the benefits or harms that one person or firm causes to others without being paid or penalised for them.
(ii) **Positive externality**: a benefit caused to others without being paid for it, e.g. a flower garden that delights neighbours. **Negative externality**: harm caused to others without being penalised, e.g. smoke from a factory damaging people's health.
(iii) **How**: by placing a fee or tax on emissions (carbon tax, green cess, eco tax) and by giving subsidies or incentives for lower emissions. **Why**: emission of greenhouse gases is a negative externality not counted in GDP; when polluters have to pay for it, they find it cheaper to cut emissions and move to greener technology, so the negative externality is reduced and ecological balance is protected.

CBSE 2024 · 58/3/II (OR) (i) "GDP deflator is represented by the ratio of real GDP and nominal GDP." Do you agree? Justify with valid arguments and a hypothetical numerical example. (ii) State the meaning of "income from property and entrepreneurship". [6]

Ans. (i) **No.** GDP deflator = (nominal GDP ÷ real GDP) × 100; it is the ratio of nominal to real GDP, and it measures the change in the price level.

Year	Price (₹)	Output	Real GDP	Nominal GDP	GDP deflator
2010 (base)	10	100	1,000	1,000	1,000/1,000 × 100 = 100
2015	15	100	1,000	1,500	1,500/1,000 × 100 = 150

Output is unchanged; GDP rose only because prices rose by 50%, which the deflator (150) shows.
(ii) Factor income earned in the form of rent (including royalty), interest and profit is together called income from property and entrepreneurship (operating surplus).

CBSE 2024 · 58/4/II (a) "In the past few decades, the Indian economy has benefited from positive externalities created by the rapid rise in infrastructure." Justify. (b) State the steps for estimating national income by the value added method. [6]

Ans. (a) India has built highways, metros, airports, power plants, digital networks and so on. Such infrastructure promotes growth, attracts foreign investment and raises productivity. Many people benefit from it without paying for it directly: better roads reduce travel time and transport costs for all businesses and residents, rural roads raise farmers' access to markets, digital networks open new services. These are benefits caused to others without payment, i.e. **positive externalities**, which add to welfare beyond what is measured in GDP.
(b) (1) Identify and classify the producing units into the primary, secondary and tertiary sectors. (2) Estimate the gross value added of each sector (value of output – intermediate consumption) and add them to get GDP_{MP}. (3) Deduct consumption of fixed capital and net indirect taxes and add net factor income from abroad to arrive at national income (NNP_{FC}).

CBSE 2024 · 58/5/II (a) "Electric vehicle sales cross 10 lakh mark in 2022-23" (The Economic Times, 11 April 2023). Analyse the likely impact on GDP and welfare. (b) Discuss briefly the circular flow of income in a two-sector economy. [6]

Ans. (a) Production and sale of more EVs adds value to the economy (vehicles, batteries, charging infrastructure), so **GDP rises**. Since EVs produce no exhaust emissions, they reduce air pollution and fuel imports; the reduction in this negative externality raises people's health and **welfare**. So both GDP and welfare increase.
(b) Households own factors of production and supply them to firms; firms produce goods and services and pay rent, wages, interest and profit to households; households spend this income on goods and services produced by firms. Thus income flows from firms to households as factor payments and back to firms as consumption expenditure, completing the circular flow.

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CBSE 2025 · 58/1/1 (i) Explain any two precautions to be adopted while estimating national income by the expenditure method. (ii) "Higher GDP always means higher per capita availability of goods in the economy." Defend or refute as an index of welfare. [6]

Ans. (i) (1) **Intermediate expenditure is excluded**: only final expenditure is counted, otherwise the same goods would be counted twice (double counting). (2) **Second-hand goods are excluded**: they were counted in the year they were produced and do not add to the current flow of goods and services. (Also: purchase of financial assets and transfer payments are excluded.)
(ii) **Refuted.** A rise in GDP does not necessarily raise welfare: (1) if population grows faster than GDP, per capita availability falls; (2) if the increase in GDP is concentrated in a few hands, most people may have the same or lower income (distribution of GDP); (3) GDP ignores negative externalities (pollution) and non-monetary exchanges; (4) composition matters: more output of weapons need not raise welfare. So higher GDP need not mean higher per capita availability or welfare.

CBSE 2025 · 58/1/1 (OR) (i) Distinguish between stock and flow variables with suitable examples. (ii) Explain the components of "profit" under the income method of estimating national income. [6]

Ans. (i) A **stock** is measured at a point of time, e.g. national wealth, capital, money supply on 31 March. A **flow** is measured over a period of time, e.g. national income, investment, consumption during a year. (A flow changes a stock: investment adds to capital.)
(ii) Profit has three components: (1) **corporation (corporate) tax**: the tax paid by companies on their profits; (2) **dividend**: the part of profit distributed among shareholders (owners of capital); (3) **undistributed profit (retained earnings)**: the part of profit kept by firms and not distributed.

CBSE 2025 · 58/2/1 (i) Estimate national income (₹ crore): PFCE 2,000; GFCE 1,500; GDFCF 1,000; addition to stock 400; consumption of fixed capital 50; NFIA 100; net indirect taxes 200; net exports 700. (ii) Differentiate between real flow and money flow. [6]

Ans. (i) GDP_{MP} = 2,000 + 1,500 + 1,000 + 400 + 700 = 5,600.
NNP_{FC} = 5,600 − 50 + 100 − 200 = **₹ 5,450 crore**.
(ii) **Real flow**: the flow of factor services from households to firms and of goods and services from firms to households. **Money flow**: the flow of money as factor payments (rent, wages, interest, profit) from firms to households and as payment for goods and services (consumption expenditure) from households to firms.

CBSE 2025 · 58/2/1 (OR) (i) Gauhar started a boutique; to produce dresses for sale she bought a sewing machine, fabric, buttons and thread. Classify them as final or intermediate goods with reasons. (ii) "National income is always equal to domestic income in a two-sector economy." Defend or refute. [6]

Ans. (i) **Sewing machine: final good** (capital good): it is used for investment, i.e. for producing dresses over many years, and is not used up or resold in the same year. **Fabric, buttons and thread: intermediate goods**: they are completely used up in producing the dresses for sale in the same year, and their value is included in the value of the dresses.
(ii) **Defended.** National income = domestic income + NFIA. A two-sector economy (households and firms only) is a closed economy with no dealings with the rest of the world, so NFIA = 0 and national income equals domestic income.

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CBSE 2025 · S8/4/1 (i) Three firms X, Y and Z: X sold goods worth ₹ 20,000 to Y and ₹ 12,000 to Z; Y sold goods worth ₹ 11,000 to X and ₹ 35,000 to Z; Z sold goods worth ₹ 57,000 to households for final consumption. Calculate GDP_{MP}. (ii) Elaborate the likely impact of construction of two new express highways on GDP and welfare. [6]

Ans. (i)

Firm	Value of output	Intermediate consumption	Value added
X	20,000 + 12,000 = 32,000	11,000	21,000
Y	11,000 + 35,000 = 46,000	20,000	26,000
Z	57,000	12,000 + 35,000 = 47,000	10,000
Total	**1,35,000**	**78,000**	**57,000**

GDP_{MP} = sum of value added = **₹ 57,000** (equal to the final consumption expenditure).

(ii) Building the highways adds to output and employment directly; better infrastructure attracts more investment, so **GDP rises**. Highways reduce travel time and transport costs and connect markets, which raises the well-being of citizens (positive externality), so **welfare also rises** (though there may be some negative effects such as loss of green cover or noise).

CBSE 2025 · S8/4/1 (OR) (i) Estimate national income (₹ crore): household consumption 800; gross business fixed capital formation 150; gross residential construction investment 120; government final consumption 270; excess of imports over exports 20; inventory investment 50; gross public investment 130; net indirect taxes 20; NFIA (–)25; consumption of fixed capital 40. (ii) "All producer goods are essentially capital goods." Defend or refute with an example. [6]

Ans. (i) GDP_{MP} = 800 + 270 + 150 + 120 + 130 + 50 – 20 = 1,500.

NNP_{FC} = 1,500 – 40 + (–25) – 20 = **₹ 1,415 crore.**

(ii) **Refuted.** Producer goods are goods used for further production. They are of two kinds: **single-use producer goods** (intermediate goods), completely used up in production within the year, e.g. raw cotton used by a textile mill; and **durable-use producer goods** (capital goods), used for many years, e.g. the mill's looms. So not all producer goods are capital goods.

CBSE 2025 · S8/5/1 (i) Three firms A, B and C: A sold goods worth ₹ 2,000 to B and ₹ 1,200 to C; B sold goods worth ₹ 1,100 to A and ₹ 3,500 to C; C sold goods worth ₹ 5,700 to households for final consumption. Estimate NDP_{MP}, depreciation being ₹ 120. (ii) Explain the likely impact of building 2,000 new high-quality schools on GDP and welfare. [6]

Ans. (i)

Firm	Value of output	Intermediate consumption	Value added
A	2,000 + 1,200 = 3,200	1,100	2,100
B	1,100 + 3,500 = 4,600	2,000	2,600
C	5,700	1,200 + 3,500 = 4,700	1,000
Total	**13,500**	**7,800**	**5,700**

GDP_{MP} = ₹ 5,700; NDP_{MP} = 5,700 – 120 = **₹ 5,580.**

(ii) Construction of schools adds to investment, output and employment, so **GDP rises** (and the education services they provide add to GDP each year). High-quality education raises knowledge, skills and efficiency, improves health awareness and civic engagement, and raises future productivity; so the **welfare** of citizens increases as well.

CBSE 2025 · S8/5/1 (OR) (i) "All consumption goods are durable in nature." Defend or refute. (ii) Estimate national income (₹ crore): household consumption 1,800; gross business fixed capital formation 1,150; gross residential construction 1,020; government final consumption 2,170; excess of imports over exports 720; inventory investment 540; gross public investment 1,300; net indirect taxes 240; NFIA (–)250; consumption of fixed capital 440. [6]

Ans. (i) **Refuted.** Consumption goods are of four kinds: durable (cars, refrigerators, used for many years), semi-durable (clothes, furniture, about a year or a little more), non-durable (food, milk, used up quickly) and services. So not all consumption goods are durable.

(ii) GDP_{MP} = 1,800 + 2,170 + 1,150 + 1,020 + 1,300 + 540 – 720 = 7,260.

NNP_{FC} = 7,260 – 440 + (–250) – 240 = **₹ 6,330 crore.**

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CBSE 2025 · 58/6/I (i) Three firms A, B and C: A sold goods worth ₹ 2,000 to B and ₹ 1,200 to C; B sold ₹ 1,100 to A and ₹ 3,500 to C; C sold ₹ 5,700 to households. Estimate NDP_{MP} with depreciation of ₹ 120. (ii) Explain the likely impact of building 2,000 high-quality schools on GDP and welfare. [6]

Ans. (i) Value added: A = 3,200 − 1,100 = 2,100; B = 4,600 − 2,000 = 2,600; C = 5,700 − 4,700 = 1,000. GDP_{MP} = 5,700; NDP_{MP} = 5,700 − 120 = **₹ 5,580**.
(ii) The construction raises investment, output and employment, so GDP rises; the schools then provide education services each year. Better education raises knowledge, skills, efficiency and civic engagement, so the well-being of citizens (welfare) also rises.

CBSE 2025 · 58/6/I (OR) (i) Distinguish between real GDP and nominal GDP. (ii) "Electric vehicle sales crossed one million in FY 2023" (news report, 11 April 2023). Analyse its impact on GDP and welfare. (Visually impaired, in place of (ii): explain how non-monetary transactions limit GDP as an indicator of welfare.) [6]

Ans. (i) **Real GDP** is the money value of final goods and services produced in the domestic territory, measured at **base year** prices; it changes only with output. **Nominal GDP** is measured at **current year** prices; it changes with both output and prices.
(ii) More EVs produced and sold add value to the economy, so GDP rises. EVs produce no exhaust pollution and are energy-efficient, reducing a negative externality, so the well-being (welfare) of citizens increases too. (Visually impaired: many activities that add to welfare are not paid for in money, e.g. a homemaker's services or kitchen gardening; they are not included in GDP, so GDP understates welfare.)

CBSE 2026 · 58/3/I Calculate operating surplus and GDP_{MP} (₹ crore): (i) rent 120 (ii) profits 200 (iii) domestic income 720 (iv) mixed income 70 (v) wages and salaries 300 (vi) indirect taxes 150 (vii) subsidies 50 (viii) consumption of fixed capital 200 (ix) interest 30 (x) dividend 120 (xi) NFIA 20 [6]

Ans. Operating surplus = rent + profit + interest = 120 + 200 + 30 = **₹ 350 crore** (dividend is part of profits).
GDP_{MP} = domestic income (NDP_{FC}) + CFC + (indirect taxes − subsidies) = 720 + 200 + (150 − 50) = **₹ 1,020 crore**. (NFIA is not needed for domestic aggregates.)

CBSE 2025 · 58/7/I (i) "Domestic income is always less than national income." Do you agree? Support with arguments. (ii) Distinguish between positive and negative externalities with suitable examples. [6]

Ans. (i) **No.** National income = domestic income + NFIA. Domestic income is less than national income only when NFIA is positive (factor income from abroad > factor income paid abroad). It is more than national income when NFIA is negative, and equal when NFIA is zero (e.g. a closed economy).
(ii) **Positive externality**: a benefit caused to others without being paid for it, e.g. a newly developed public park. **Negative externality**: a harm caused to others without being penalised, e.g. smoke emitted by a factory.

CBSE 2026 · 58/3/I (OR) (i) Distinguish between real GDP and nominal GDP with a numerical example. (ii) Define externalities. [6]

Ans. (i) **Real GDP**: market value of final goods and services produced in the domestic territory in a period, at **constant (base-year)** prices. **Nominal GDP**: the same at **current** prices.

Year	Price (₹)	Output	Real GDP (P_0Q)	Nominal GDP (PQ)
2022 (base)	10	100	1,000	1,000
2025	15	100	1,000	1,500

Output is unchanged, so real GDP is unchanged; nominal GDP rose 50% only because of higher prices.
(ii) **Externalities** are benefits or harms caused by one entity to others without being paid or penalised for them.

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CBSE 2026 · 58/4/1 Read the passage (domestic product measures the value of goods and services arising within a country; national income is income earned by factors of production; national income at current prices reflects both output and price changes; to eliminate prices it is recomputed at base-year prices: national income at constant prices). (i) Differentiate between domestic product and national product. (ii) "National income measured at constant prices is a better measure of the overall real increase in production." Justify. [6]

Ans. (i) **Domestic product**: value of final goods and services produced within the **domestic territory** of a country in a period (by residents and non-residents).
National product: value of final goods and services produced by the **normal residents** of a country in a period, inside or outside the domestic territory (= domestic product + NFIA).
(ii) National income at constant prices values output at base-year prices, so it changes **only when physical output changes**; the effect of price changes is eliminated and it shows the real growth of the economy. National income at current prices may rise only because prices rise, with no rise in output, so it overstates growth.

What the board asked (16 papers, 2024–2026)

Type	2024	2025	2026	Total
MCQs and Assertion-Reason (1 mark each)	5	6	11	22
Short answer (3 marks)	8	11	8	27
Long answer I (4 marks)	0	1	6	7
Long answer II (6 marks)	4	11	3	18

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Quick-reference sheet

item	in national income?
sale of a second-hand car	no (commission of the dealer: yes)
purchase of shares, bonds	no (financial asset)
old-age pension, scholarship, gift	no (transfer)
imputed rent of owner-occupied house	yes
own-account production (farmer's own grain)	yes
services of a housewife	no
lottery prize, windfall	no
free services by employer (canteen, uniform)	yes (compensation in kind)
employer's contribution to social security	yes (COE)
employee's contribution to provident fund	no extra (part of wages already)
interest on loan taken for consumption	no
corporate tax, dividend, undistributed profit	yes (parts of profit)
indirect taxes	at MP yes, at FC no
machinery bought by a firm	yes (final: investment)
raw material bought by a firm	no (intermediate)
remittances from relatives abroad	no (transfer); NDI yes

Value of output = sales + (closing − opening stock)

NVA_{FC} = output − IC − depreciation − NIT

GDP_{MP} = PFCE + GFCE + GDCF + (X − M)

NDP_{FC} = COE + OS + MI

NI = NDP_{FC} + NFIA

Deflator = nominal ÷ real × 100

Case study (practice): Kapas Mills. A spinning mill buys cotton worth ₹ 40 lakh from farmers (who use no inputs) and sells yarn worth ₹ 90 lakh to a weaver, who sells cloth worth ₹ 150 lakh to households. The mill's machines depreciate by ₹ 5 lakh; the government collects GST of ₹ 10 lakh on the cloth.
(i) Find value added at each stage and GDP_{MP} (ii) Show GDP by the expenditure method (iii) Find NDP_{FC} (iv) Why is ₹ 280 lakh (40 + 90 + 150) wrong? (v) Classify yarn as final or intermediate, and say when it would be final.

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Practice set: test yourself *Exam-style*

Try every question before looking at the answers on page 25. 64 or more out of 80 means you are ready for the board.

A. Fill in the blanks (1 mark each)

1. Net investment = gross investment − _____.
2. GDP_{MP} − net indirect taxes = GDP at _____.
3. Domestic income + NFIA = _____ income.
4. Change in inventories = production − _____.
5. The ratio of nominal to real GDP is the GDP _____.
6. Capital is a _____ variable.
7. Rent + interest + profit = operating _____.
8. Pollution by a factory is a _____ externality.

B. True or false? (1 mark each)

1. Intermediate goods are included in GDP.
2. Investment is the most unstable component of GDP.
3. A deflator of 120 means prices have risen 20%.
4. Transfer payments are included in national income.
5. Net exports can be negative.
6. Depreciation is a flow.
7. CPI includes prices of imported consumer goods.
8. National income = NNP at market price.

C. Very short answer (1 mark each)

1. Define value added.
2. What is double counting?
3. Give one example of a stock.
4. Define NFIA.
5. What is GDCF?
6. Define consumer durables.
7. What is mixed income?
8. State the expenditure-method identity.
9. Define real GDP.
10. What is personal disposable income?

D. Short answer I (2 marks each)

1. Distinguish between GDP and GNP.
2. Why is the sale of a second-hand bicycle excluded from GDP?
3. Find value added: output 500, intermediate consumption 200, depreciation 50 (gross and net).
4. State two precautions of the income method.
5. Why is GDP an underestimate in developing countries?
6. Distinguish between planned and unplanned inventory change.
7. State two differences between CPI and the GDP deflator.
8. Is the purchase of a car by a taxi company final or intermediate? Why?

My score (fill in after checking the answers)

Section	A /8	B /8	C /10	D /16	E /18	F /20	G (bonus)	Total /80
My marks								

Rough work

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E. Short answer II (3 marks each)

1. Calculate NNP_{FC}: PFCE 800; GFCE 200; GDFCF 300; change in stock 50; net exports −30; depreciation 40; NIT 60; NFIA 20.
2. Calculate NDP_{FC}: COE 600; rent 100; interest 80; profit 220; mixed income 150.
3. Explain three precautions of the value added method.
4. Calculate GVA_{MP}: sales 900; opening stock 60; closing stock 40; purchase of raw materials 300; power 50.
5. "Real GDP is a better indicator of growth than nominal GDP." Explain with an example.
6. Explain how externalities limit GDP as an index of welfare.

F. Long answer (6 marks each)

1. From the data calculate national income by the income and expenditure methods: COE 1,200; rent 300; interest 200; profit 500; mixed income 400; PFCE 2,000; GFCE 400; GDCF 600; net exports −100; depreciation 100; NIT 200; NFIA −50.
2. Explain the three methods of measuring national income and why they give the same value.

G. HOTS (higher-order thinking)

1. Why is the change in inventories treated as investment?
2. Can NNP_{FC} exceed GDP_{MP}? When?
3. Why is interest on a consumption loan not a factor income?
4. Why may GDP rise but welfare fall after a flood that needs rebuilding?

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20 MCQs

1. Which is a flow variable?
(a) capital (b) wealth (c) income (d) money supply

2. Net investment equals:
(a) gross investment – depreciation (b) gross investment + depreciation (c) saving – depreciation (d) change in stock only

3. Value added equals:
(a) output + IC (b) sales + IC (c) sales – depreciation (d) value of output – intermediate consumption

4. GDP_{MP} by the expenditure method is:
(a) C + I + G (b) C + I + G + X – M (c) W + P + In + R (d) ΣGVA – NIT

5. National income is:
(a) GDP_{MP} (b) NNP_{FC} (c) NDP_{FC} (d) GNP_{MP}

6. NFIA is added to domestic product to get:
(a) gross product (b) factor cost (c) net product (d) national product

7. Which is excluded from national income?
(a) old-age pension (b) imputed rent (c) employer's social security contribution (d) corporate tax

8. Operating surplus includes:
(a) wages (b) mixed income (c) rent, interest and profit (d) depreciation

9. If nominal GDP is 600 and real GDP 500, the deflator is:
(a) 83.3 (b) 110 (c) 100 (d) 120

10. A negative externality makes GDP:
(a) underestimate welfare (b) overestimate welfare (c) equal welfare (d) zero

11. Machinery bought by a factory is a:
(a) intermediate good (b) consumer durable (c) final (capital) good (d) transfer

12. Change in stock = 30, sales = 500. Value of output is:
(a) 530 (b) 470 (c) 500 (d) 30

13. $GDP_{FC} = GDP_{MP}$ –:
(a) depreciation (b) net indirect taxes (c) NFIA (d) subsidies

14. Since 2015 India's headline output measure is GVA at:
(a) factor cost (b) constant cost (c) basic prices (d) wholesale prices

15. Which is a stock?
(a) investment (b) exports (c) depreciation (d) inventory on 31 March

16. Domestic services of a homemaker are:
(a) excluded from GDP (b) included in GDP (c) part of mixed income (d) transfer income

17. The CPI uses:
(a) a fixed basket bought by a representative consumer (b) all goods produced (c) wholesale goods (d) exports

18. Personal disposable income equals:
(a) PI + taxes (b) NNP – CT (c) NI – UP (d) PI – personal taxes – non-tax payments

19. In the farmer-baker example GDP is:
(a) 300 (b) 250 (c) 200 (d) 150

20. An Indian working in Dubai adds to:
(a) India's GDP (b) both (c) India's GNP (d) neither

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

Assertion–Reason (6)

(a) Both true, R explains A. (b) Both true, R does not explain A. (c) A true, R false. (d) A false, R true.

1. A: Intermediate goods are excluded from GDP. R: Their value is already included in the value of final goods.
2. A: Real GDP is a better measure of growth. R: It changes only with changes in physical output.
3. A: Sale of old furniture is part of GDP. R: The dealer's commission is a productive service.
4. A: Change in inventories is investment. R: Inventories are treated as capital.
5. A: GDP is an overestimate of welfare when there is pollution. R: Positive externalities are not counted in GDP.
6. A: National income can be less than domestic income. R: NFIA may be negative.

Key: 1 (a) · 2 (a) · 3 (d) · 4 (a) · 5 (b) · 6 (a)

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Answers to the practice set

A. 1. depreciation 2. factor cost 3. national 4. sales 5. deflator 6. stock 7. surplus 8. negative

B. 1. F 2. T 3. T 4. F 5. T 6. T 7. T 8. F (NNP at factor cost)

C. 1. value of output – intermediate consumption 2. counting the value of a good more than once (intermediate goods counted again in final goods) 3. capital (or wealth, money supply) 4. factor income earned from abroad – factor income paid to abroad 5. gross domestic capital formation = GDFCF + change in stock 6. consumer goods with a long life (TV, car) 7. income of self-employed where labour and capital incomes cannot be separated 8. GDP = C + I + G + X – M 9. GDP at base-year prices 10. PI – personal taxes – non-tax payments

D. 1. GDP: within domestic territory; GNP = GDP + NFIA, by normal residents 2. it was counted when first produced; no new production 3. GVA 300, NVA 250 4. exclude transfers; exclude sale of second-hand goods and financial assets (or include imputed rent) 5. non-monetary (barter, housework) activity is large 6. planned: intended by firm; unplanned: due to unexpected sales 7. CPI includes imports and fixed weights; deflator covers all goods with changing weights 8. final (capital good, used for many years, not resold)

E. 1. GDP_{MP} = 800 + 200 + 350 – 30 = 1,320; NDP_{FC} = 1,320 – 40 – 60 = 1,220; NNP_{FC} = 1,220 + 20 = **1,240** 2. 600 + 100 + 80 + 220 + 150 = **1,150** 3. p. 3 4. output = 900 + (40 – 60) = 880; GVA_{MP} = 880 – 350 = **530** 5. p. 6 6. p. 6

F. 1. Income: NDP_{FC} = 1,200 + 300 + 200 + 500 + 400 = 2,600; NI = 2,600 – 50 = **2,550**. Expenditure: GDP_{MP} = 2,000 + 400 + 600 – 100 = 2,900; NDP_{FC} = 2,900 – 100 – 200 = 2,600; NI = 2,600 – 50 = **2,550**. Both methods agree. 2. p. 3–4

G. 1. inventories are capital: unsold goods are an addition to the firm's stock of capital 2. yes, if NFIA is large and positive, more than depreciation + NIT 3. it is paid out of the borrower's income, not from current production 4. reconstruction spending is counted, but the destroyed capital and lost welfare are not deducted

Case. (i) farmers 40; mill 90 – 40 = 50; weaver 150 – 90 = 60; GDP_{MP} = 150 (ii) final expenditure on cloth by households = 150 (iii) NDP_{FC} = 150 – 5 – 10 = 135 (iv) cotton and yarn are counted again inside cloth: double counting (v) intermediate (used to make cloth); final if bought by a household for home knitting or kept as unsold stock (added to inventories) at year end

Last-night summary

- Final versus intermediate depends on use; count only value added (no double counting).
- Stocks at a point, flows over a period; net investment = gross – depreciation; inventory change is investment.
- GDP ≡ ΣGVA ≡ C + I + G + X – M ≡ W + P + In + R; precautions for each method.
- Gross – D = net; MP – NIT = FC; domestic + NFIA = national; NI = NNP_{FC}; PI, PDI.
- Real GDP at base-year prices; deflator = nominal ÷ real; CPI; GDP not a welfare index (distribution, non-monetary, externalities).

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