

## SELF-EXPLANATORY

Numericals	INCOME METHOD	(Basic question)
(Q-1) Calculate $NDP_{fc}$	$NDP_{fc}$	
Particulars	₹ (in crores)	
(i) Rent	400	
(ii) Royalty	200	
(iii) Interest	500	
(iv) Compensation of employees	1000	
(v) Profit	500	
(vi) Mixed Income	1000	

(Ans-1) Under income method we calculate  $NDP_{fc}$  by →

$$NDP_{fc} = \text{Compensation of employees} + \text{Operating surplus} + \text{Mixed income}$$
$$= 1000 + \begin{array}{l} \text{rent \& royalty (600)} \\ \downarrow \\ \text{Interest (500)} \end{array} + 1000$$
$$+ \text{Profit (500)}$$

$$\text{So } NDP_{fc} = 1000 + 600 + 500 + 500 + 1000$$
$$= ₹ 3600 \text{ crores.}$$

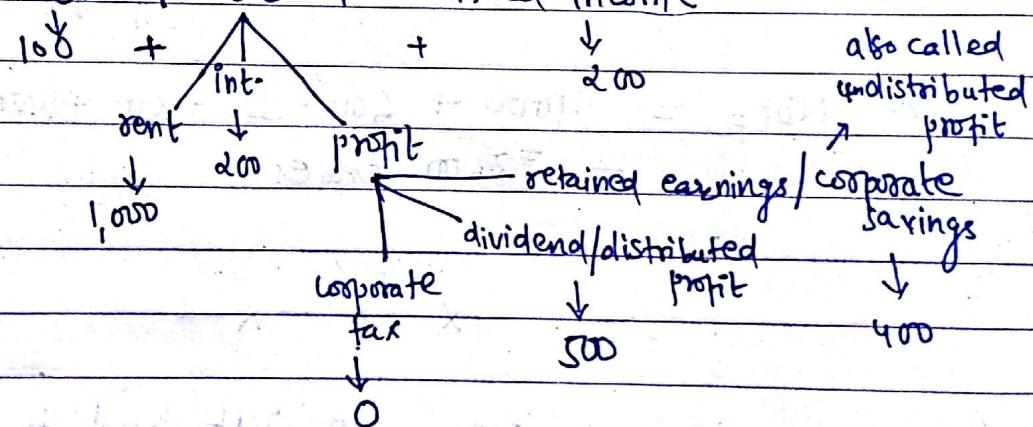
All the information was given, we just had to put it in the formula.

(Q-2) Calculate  $GNP_{MP}$   $\rightarrow$

<u>Particulars</u>	<u>₹ (crores)</u>
i) Net indirect tax (NIT)	900
ii) Depreciation	400
iii) Net factor income from abroad (NFIA)	-20
iv) Rent	1,000
v) Dividend	500
vi) Mixed income	200
vii) Savings of private corporate sector	400
viii) Interest	900
ix) Compensation of employees (COE)	100

(Ans-2) We will 1st get  $NDP_{FC}$  via income method, then we would go to  $GNP_{MP}$ .

$$So \rightarrow NDP_{FC} = COE + OS + \text{Mixed income}$$



$$So \quad NDP_{FC} \text{ after adding all} = 2400$$

$$\begin{aligned} \text{Now } GNP_{MP} &\Rightarrow NDP_{FC} + \text{depreciation} + \text{NFIA} + \text{Net indirect tax (NIT)} \\ &\Rightarrow 2400 + 400 + (-20) + 900 \\ &\Rightarrow ₹ 3680 \text{ crores.} \end{aligned}$$

[We did 3 transformations i.e.) Net to Gross via adding depreciation, Domestic to national via adding NFIA and FC to MP via adding NIT  
remember  $\rightarrow NIT = \text{Indirect tax} - \text{Subsidy}$

(Q-3) Calculate National Income.

<u>Particulars</u>	<u>₹ in crores</u>
(i) Compensation of employees	13,300
(ii) Wages in kind	200
(iii) Indirect taxes	3,800
(iv) Gross domestic fixed capital formation	6,200
(v) Operating surplus	5,000
(vi) Mixed income	16,100
(vii) NFIA	300
(viii) Net exports	(-) 100

(Ans-3) By National income we mean  $\rightarrow NNP_{fc}$   
 1st we will get  $NDP_{fc}$ ; then we will convert it into  $NNP_{fc}$

$$\begin{aligned}
 NDP_{fc} &= COE + OS + \text{Mixed income} \\
 &\quad \downarrow \quad \downarrow \quad \downarrow \\
 &13,300 \quad 5,000 \quad 16,100 \\
 &= ₹ 34,400 \text{ crores}
 \end{aligned}$$

$$\text{Now } NNP_{fc} = NDP_{fc} + NFIA = 34,400 + 300 = ₹ 34,700 \text{ crores}$$

Note that  $\rightarrow$  (i) When COE is given, we will not take wages in kind separately, since it is already included under COE.

(ii) There was no use of net exports and gross domestic capital formation as they are used while calculating national income by expenditure method.

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## Expenditure Method

(Q-4) Calculate GPP →

## Particulars

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|---|------|
| (i) Private final consumption expenditure | 1200 |
| (ii) Govt. final consumption expenditure  | 900  |
| (iii) Gross fixed capital formation       | 300  |
| (iv) Change in stock                      | 400  |
| (v) Imports                               | 500  |
| (vi) Exports                              | 600  |

(Ans-4) This question is direct application of formula i.e.,

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(Q-5) Calculate GNP at FC :

<u>Particulars</u>	<u>₹ in crores</u>
(1) Net domestic fixed capital formation	350
(2) Closing stock	100.
(3) Govt. final consumption expenditure	200
(4) Net indirect taxes	40
(5) Opening stock	60
(6) Consumption of fixed capital (also called depreciation)	50
(7) Net exports	(-) 10
(8) Private final consumption expenditure	1,500
(9) Imports	20
(10) Net factor income from abroad (NFI A)	(-) 30

(Ans-5) Under expenditure method, we 1<sup>st</sup> get  $GDP_{MP}$ , then we will convert it into  $GNP_{FC}$  (as per question)

$$\begin{aligned}
 GDP_{MP} &= \text{priv. final} + \text{govt. final} + \text{Gross domestic cap. formation (GDCF)} + \text{Net exports (exports less imports)} \\
 &= 1500 + 200 + 350 + 50 + (-10) \\
 &\quad \left. \begin{array}{l} \text{gross domestic fixed} \\ \text{cap. formation} \end{array} \right\} \downarrow \quad \left. \begin{array}{l} \text{change in stock (closing - opening} \\ \text{stock) } \end{array} \right\} \downarrow [100 - 60] \\
 &\quad \left. \begin{array}{l} \text{Net domestic fixed cap. formation} \\ + \text{depreciation} \end{array} \right\} \downarrow \quad \left. \begin{array}{l} \text{GDP}_{MP} \end{array} \right\} \\
 &= 350 + 50 \\
 &= 1500 + 200 + 400 + 40 - 10 = \underline{\underline{₹ 2130 \text{ crores}}} \\
 \text{now, } GNP_{FC} &= GDP_{MP} + NFI A \rightarrow (\text{less NIT}) \\
 &= 2130 + (-30) - 40 \quad \left| \begin{array}{l} \text{Note} \rightarrow \text{we did} \rightarrow \text{net domestic} \\ \text{fixed capital formation + depreciation} \end{array} \right. \\
 &= \underline{\underline{₹ 2060 \text{ crores}}} \quad \left| \begin{array}{l} \text{to get gross domestic fixed} \\ \text{capital formation because formula} \end{array} \right. \text{ requires it.}
 \end{aligned}$$

### Value-Added Method

(Q-6) Calculate  $NVA_{mp}$  (Net value Added at market price)

<u>Particulars</u>	<u>₹ in crores</u>
(i) Sales	90
(ii) closing stock	25
(iii) opening stock	15
(iv) indirect taxes	10
(v) Depreciation	20
(vi) Intermediate consumption (IC)	40
(vii) Purchase of raw materials	15
(viii) Rent	5

(Ans-6) Under value-added method, we 1<sup>st</sup> get  $GVA_{mp}$ , so to get  $NVA_{mp}$ , we will change  $GVA_{mp}$  to  $NVA_{mp}$ .

$$\text{Value Added} = \text{Value of output} - \text{Intermediate consumption}$$

$$GVA_{mp} = \text{Sales} + \text{change in stock}$$

$\downarrow$

$$90 + (25 - 15) \rightarrow \text{closing} - \text{opening stock}$$

$$= 90 + 10 - 40$$

$$GVA_{mp} = ₹ 60 \text{ crores}$$

$$\begin{aligned} \text{now } NVA_{mp} &= GVA_{mp} - \text{depreciation} & [\text{as Gross-dep.} = \text{Net}] \\ &= 60 - 20 \\ &= ₹ 40 \text{ crores} \end{aligned}$$

Note → (i) When intermediate consumption is given, purchase of raw materials is not to be included as IC already includes it.

(ii) Here, 'rent' was of no use, since it is used when we calculate national income by income method.

(Q-7) Calculate GVA for

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$\Sigma$  in thousands

(i)	Sales	500
(ii)	opening stock	30
(iii)	closing stock	20
(iv)	purchase of intermediate products	300
(v)	purchase of machinery	150
(vi)	Subsidy	40

(Ans-7) 1<sup>st</sup> we will get GVA<sub>mp</sub>, then we may convert it into GVA<sub>fc</sub>

$$GVA_{mp} = \text{Value of output} - \text{Intermediate consumption}$$

Sales + change in stocks

closing-opening

$$500 + (20 - 30) = 350 \rightarrow 130$$

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$$GVA_{mp} = \text{Net indirect tax}$$

$$= 190 - [0 - 40] \\ = 190 + 40 \\ = \text{Rs } 230$$

$$= 490 + 40 = 530$$

Note — (i) purchase of machinery is not taken, since it is not a part of intermediate consumption ; it is a final good.

purchase of machinery is not green, since it is not a part of intermediate consumption; it is a final good used for purpose of investment.

(i) domestic sales by Firm A	4,000
(ii) Exports by Firm A	1,000
(iii) Purchase by Firm A	200
(iv) Sales by Firm B	2,940
(v) Purchase by Firm B	1,300

(Ans-8)

$$\begin{array}{l}
 \text{(i) Value Added by firm A} = \text{Value of output} - \text{Intermediate consumption} \\
 \qquad\qquad\qquad\downarrow\qquad\qquad\qquad\downarrow \\
 \qquad\qquad\qquad \text{Sales by firm A} \qquad\qquad\qquad \text{purchases by firm A} \\
 \qquad\qquad\qquad\downarrow\qquad\qquad\qquad\downarrow \\
 \qquad\qquad\qquad \text{domestic sales} + \text{Exports} \\
 \qquad\qquad\qquad\downarrow\qquad\qquad\qquad\downarrow \\
 = 64000 + 1000 - 200 \\
 = \text{₹ } 4800 \text{ crores}
 \end{array}$$

$$\text{(ii) Value added by firm B} = \text{Value of output} - \text{Intermediate consumption}$$

↓   ↓  
 Sales by firm B - purchase by firm B  
 = 2940 - 1300  
 = ₹ 1640 crores

Note → (i) In case of firm A, we took both domestic sales and exports to calculate 'total sales' as it was not directly given.  
And if total sales is given in the question, then we will not separately include domestic sales or exports, since it would have been already included.

Questions related to National income at current and constant price.

(Q-1) If price index for the current year is 150, and national income at current price is ₹ 1,50,000, then the national income at constant price is ? (in crores)

(Ans-1) formula: National income at constant price =  $\frac{\text{National income at current price}}{\text{current price index}} \times 100$

$$= \frac{1,50,000}{150} \times 100 = \frac{1,00,000}{150} \text{ crores}$$

(Q-2) If nominal GDP is ₹ 15,000 crores and real GDP is ₹ 12,000 crores, calculate GDP deflator.

(Ans-2) formula: GDP deflator =  $\frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$

$$= \frac{15000}{12000} \times 100$$

$$= 125$$

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