Q5.
Ans: GDP can be calculated by the following three methods:
(a) Income method

GDP = $\sum_{i=1}^{M} W_i + \sum_{i=1}^{M} P_i + \sum_{i=1}^{M} I_i + \sum_{i=1}^{M} R_i$ .... (i)

$\sum W_i$ represents total wages and salaries received by i = th households.

$\sum P_i$ represents total profit received by i-th households.

$\sum I_i$ represents total Income received by i-th households.

$\sum W_i$ represents total Rent received by i-th households.

quation (1) can be simplified as

GDP = W + R + I + P

(b) Value added or product method

or GDP = $GVA_1 + GVA_2 + ...GVA_n$

Where,

GVA_1 represents gross value added by the 1st firm

GVA_2 represents gross value added by the 2nd firm and so on

GVA_n represents gross value added by the nth firm

Therefore,

GDP = $\sum_{i=1}^{n} GVA_i$

(c) Expenditure method or final consumption method
GDP = Sum total of revenues that firms earn
Or
GDP = Total consumption + Investment + Government Consumption expenditure + Net exports

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

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

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

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

= C + I + G + X − M

The three methods give the same result for measuring GDP because what is produced in the economy is either consumed or invested. The three methods depict the same picture of an economy from three different angles. While the product method presents the value added or total production, the income method depicts the income earned by all the factors, lastly, the expenditure method presents the expenditure incurred by all the factors. In the economy, the producer employs four factors of production to produce final goods and earns revenue by sale, which is equivalent to the total value addition by the firm. The firms pay remunerations to the factors, which act as the income of all the factors. These remunerations are equivalent to the factors' contributions to the value addition. These factor incomes are then expended on the goods and services, which verifies the equality between the factor income and expenditure. Hence, the three methods will always give the same value of GDP.

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