

## Income determination and Multiplier

### Numericals

(Q-1) In an economy, the marginal propensity to consume is 0.8. If the investment increases by ₹1,000 crores, calculate the total increase in income.

(Ans-1) First calculate  $k \rightarrow$  multiplier

$$k = \frac{1}{1-MPC} = \frac{1}{1-0.8} = \frac{1}{0.2} = \frac{10}{2} = 5$$

now  $k = \frac{\Delta Y}{\Delta I} \rightarrow$  change in income / change in investment

$5 = \frac{\Delta Y}{1000}$ , so  $5000 = \Delta Y \rightarrow$  Change in income <sup>increase</sup>

(Q-2) As a result of increase in investment by ₹125 crores, national income increase by ₹500 crores. Calculate MPC.

(Ans-2)  $k = \frac{\Delta Y}{\Delta I} = \frac{500}{125} = 4$

Now,  $k = \frac{1}{1-MPC} \Rightarrow 4 = \frac{1}{1-MPC}$

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

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

$\downarrow$   
 $0.75$   
 $=$



(Q-3) From the following data about an economy, calculate its equilibrium level of income :

- MPC = 0.5
- autonomous consumption expenditure ( $\bar{c}$ ) = 300
- Investment expenditure (I) = 6,000

(Ans-3) We have →  $S = -\bar{c} + (1-b) Y$   
 $S = -300 + (1-0.5) Y$   
 $S = -300 + 0.5 Y$

At equilibrium level of income →  $AD = AS$

$$C+I = C+S \Rightarrow S=I$$

That is savings = investment

So  $6,000 = -300 + 0.5 Y$

⇒  $6,300 = \frac{1}{2} Y$  or  $Y = 12,600$  → equilibrium level of income.

(Q-4) Calculate MPC →

- (i)  $\bar{c} = 70$ , (ii) Equilibrium income = 700, (iii)  $I = 140$

(Ans-4) →  $S = -\bar{c} + (1-b) Y$

now  $S=I$  at equilibrium level of income

⇒  $140 = -70 + (1-b) 700$

⇒  $\frac{210}{700} = 1-b$

⇒  $\frac{3}{10} = 1-b$

or  $b = 1 - \frac{3}{10} = \frac{7}{10}$  or 0.7 → MPC =