

## TOPICS COVERED

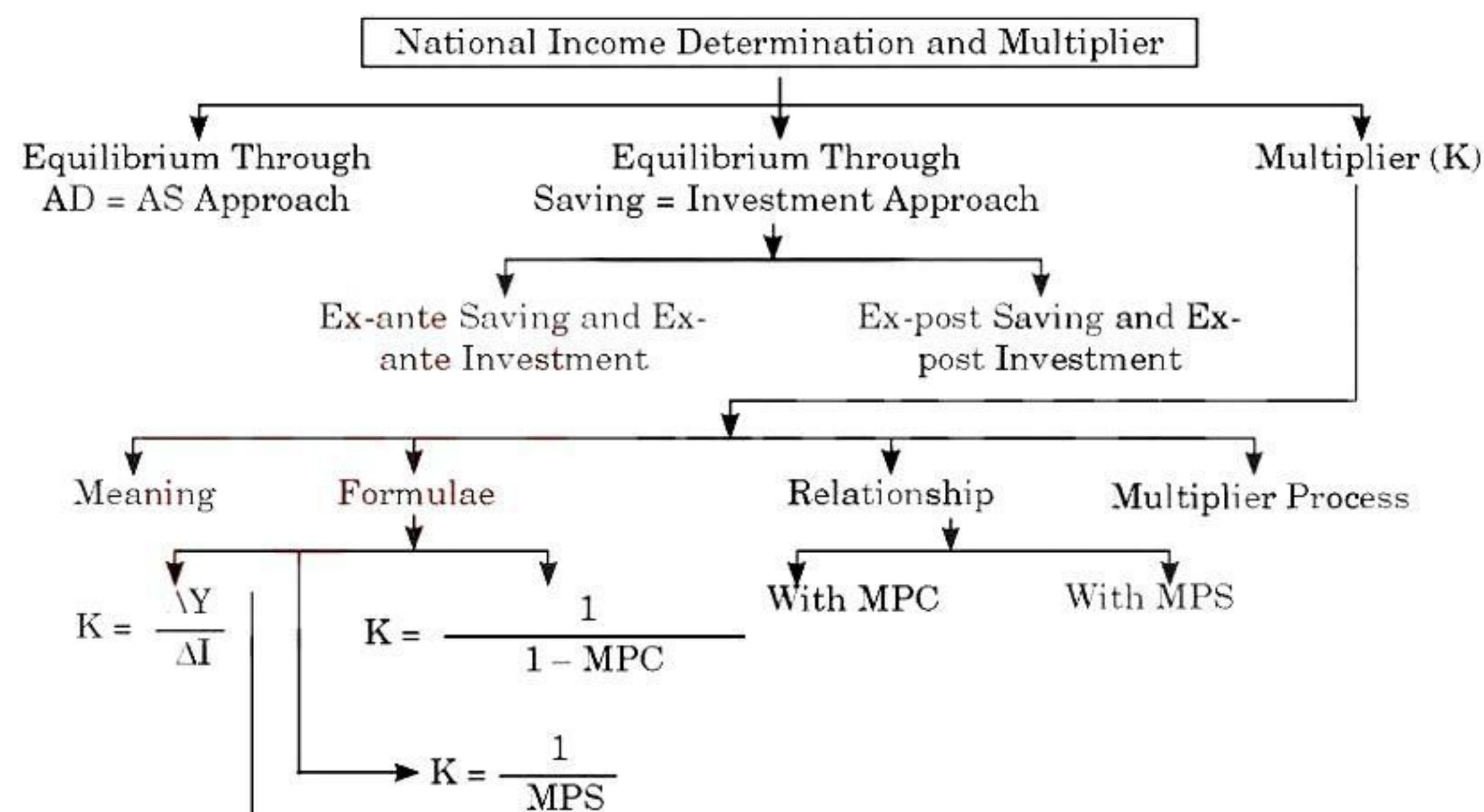
- 4.1 National Income Determination under Aggregate Demand, Aggregate Supply Approach and Saving, Investment Approach, Effective Demand
- 4.2 Concept of Investment Multiplier and Its Relation with MPC and MPS
- 4.3 Working of Multiplier or Multiplier Process

## IMPORTANT FORMULAE

$$\text{Multiplier (K)} = \frac{\Delta Y}{\Delta I} = \frac{1}{1 - \text{MPC}} = \frac{1}{\text{MPS}}$$

National Income Equilibrium :  $AD = AS$  or  $C + I = C + S$  or  $I = S$

## Chapter Map



## QUICK REVISION NOTES

### 4.1 National Income Determination Under Aggregate Demand, Aggregate Supply Approach and Saving, Investment Approach, Effective Demand

- Determination of equilibrium level of national income OR  
Keynesian theory of income and employment

(i) It refers to that point which has come to be established under the given condition of aggregate demand and aggregate supply, and has tendency to stick to that level under this given condition:

**Condition to get equilibrium level of NY**

(a)  $AD = AS$

(b) Investment = Saving

How is Investment = Saving?

Here,

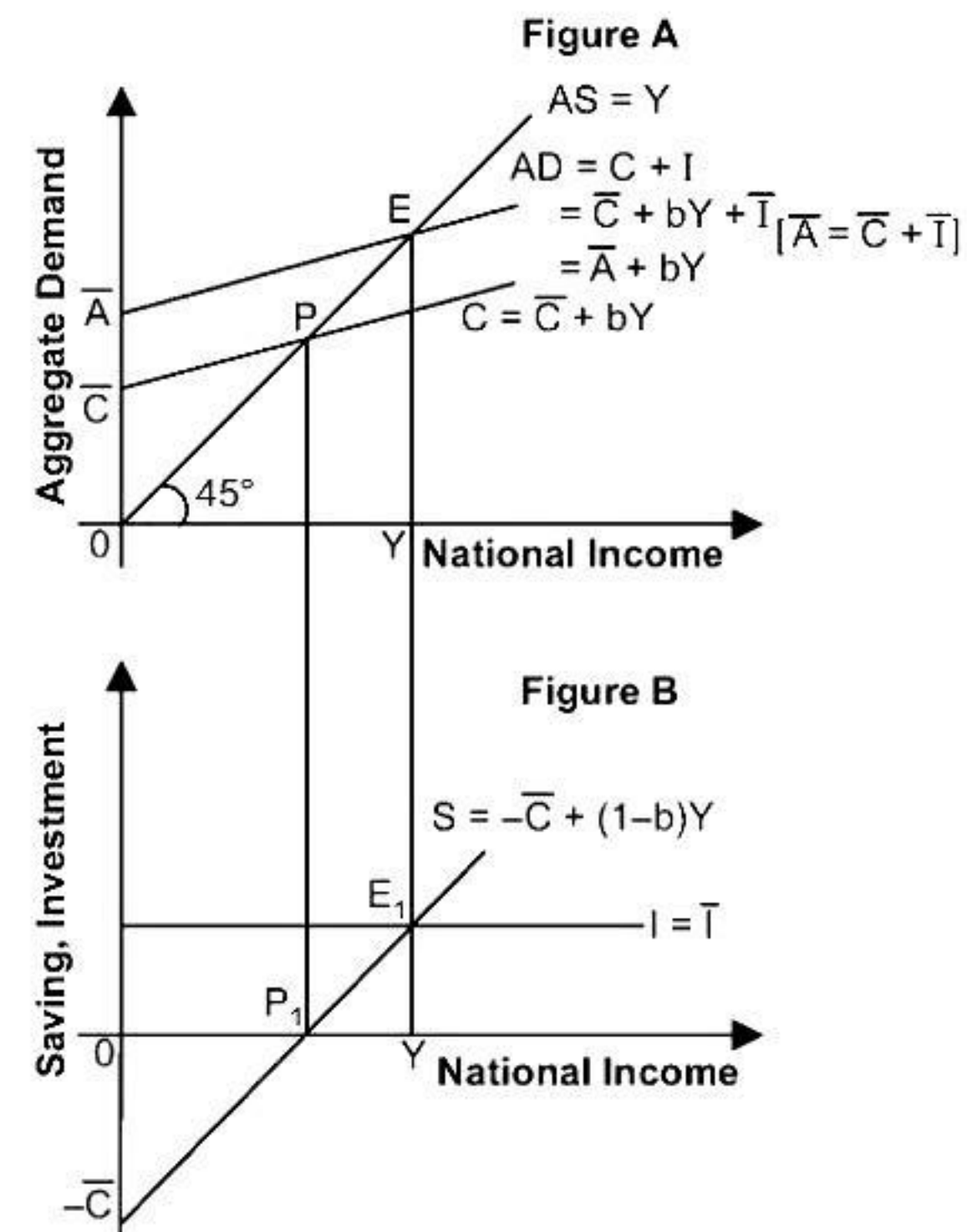
$AD = AS$

$C + I = C + S$

$$I = C + S - C$$

$$I = S$$

- (ii) If due to some disturbance, we divert from that position, then the economic forces will work in such a manner so as to drive us back to the original position, i.e., aggregate demand is equal to aggregate supply.
- (iii) Any movement from that point would be unstable. In short, it is a position of rest.
- (iv) It can be explained with the help of following schedule and diagram:

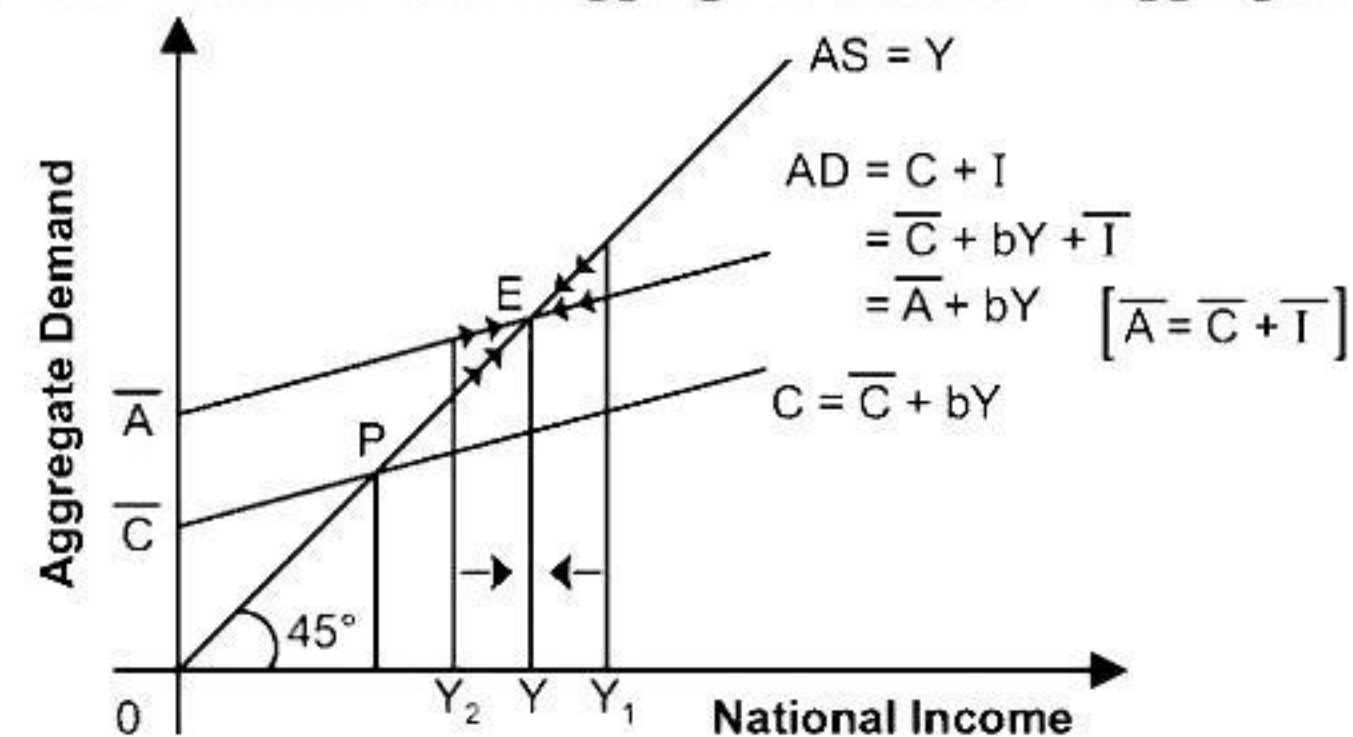


<i>NY</i>	<i>C</i>	<i>S</i>	<i>I</i>	<i>AD</i>	<i>AS</i>	<i>Resulting tendency</i>
3000	3000	NIL	400	3400	3000	Expansion
4000	3800	200	400	4200	4000	Expansion
5000	4600	400	400	5000	5000	Equilibrium
6000	5400	600	400	5800	6000	Contraction
7000	6200	800	400	6600	7000	Contraction

- (v) Figure B is derived from figure A. In figure A at point P, income is equal to consumption, which is known as breakeven point. Corresponding to point P, we derive point P<sub>1</sub>, in figure B, where saving is equal to zero. In figure A, the equilibrium level of national income is attained at point E, where aggregate supply = aggregate demand. Corresponding to point E, we derive the point E<sub>1</sub>, where saving = investment.

- Determination of equilibrium level of national income through Aggregate demand- Aggregate Supply Approach
  - (i) It refers to the point that has come to be established under the given condition of aggregate demand and aggregate supply, and has tendency to stick to that level under this given condition where Aggregate demand = Aggregate Supply.

- (ii) If due to some disturbance, we divert from that position, the economic forces will work in such a manner so as to drive us back to the original position, i.e., aggregate demand is equal to aggregate supply.
- (iii) In the above mentioned figure, at point P, income = consumption, which is known as to be a break-even point. The equilibrium level of national income is attained at point E, where aggregate demand = aggregate supply.



- (iv) If due to some disturbance we divert from our position, like when  $AD > AS$  [at  $Y_2$ ], then, production will have to be increased to meet the excess demand. Consequently, national income will increase. As we know positive relationship exists between national income and consumption, so consumption will increase, which will thereby increase the aggregate demand till we reach the equilibrium.
- (v) As against it, when  $AD < AS$  [at  $Y_1$ ], then there would be stockpiling and producers will produce less. National income will fall and as a result consumption will start falling, which will thereby fall the aggregate demand till we reach the equilibrium.

- (a) Ex-ante saving and ex-ante investment:

- (i) In an economy what we plan (or intend or desire) to save during a particular period is called ex-ante saving.

(ii) Against it, what we plan (or intend or desire) to invest during a particular period is called ex-ante investment.

(b) **Ex-post saving and ex-post investment.**

(i) In an economy what we actually save or what is left after deducting consumption expenditure from income is called ex-post (or realized) saving.

(ii) As against it what we actually invest or what we actually add to the physical assets of an economy is called ex-post (or realized) investment.

• **Determination of equilibrium level of national income through Saving- Investment Approach**

(i) It refers to the point that has come to be established under the given condition of aggregate demand and aggregate supply, and has tendency to stick to that level under this given condition where Aggregate demand(AD) = Aggregate Supply (AS).

$$AD = AS$$

$$\text{Consumption (C) + Investment(I) = Consumption (C) + Saving(S)}$$

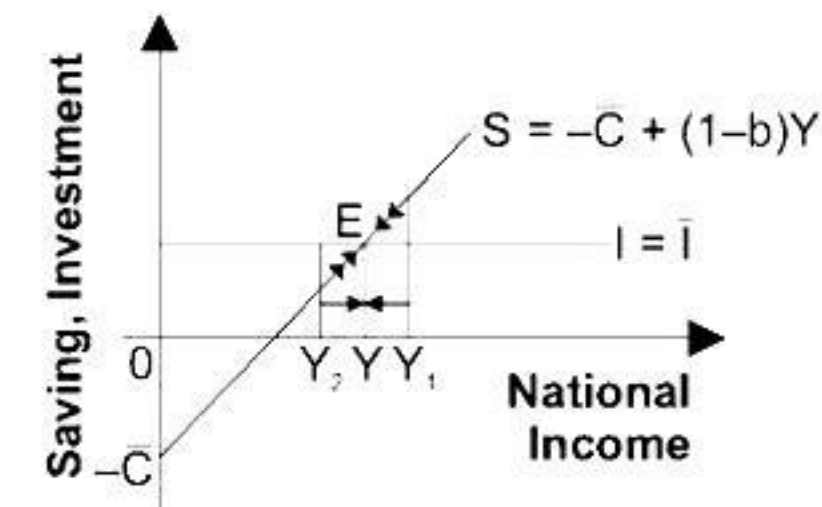
$$I = S$$

(ii) If due to some disturbance, we divert from that position, the economic forces will work in such a manner so as to drive us back to the original position, i.e., Saving is equal to Investment.

(iii) In the above figure, the equilibrium level of national income is attained at point E, where saving = investment which is derived from a point where AD = AS.

(iv) If due to some disturbance we divert from our position like when investment > saving [at  $Y_2$ ], then production will have to be increased to meet the excess demand. Consequently, national income will increase leading to rise in saving until saving becomes equal to investment. It is here that equilibrium level of income is established because what the savers intend to save becomes equal to what the investors intend to invest.

(v) As against it, when saving > investment [at  $Y_1$ ], then there would be stockpiling and producers will produce less. National income will fall and as a result saving will start falling until it becomes equal to investment. It is here the equilibrium level of income is derived.



• **Effective demand:** The level at which the economy is in equilibrium, i.e., where aggregate demand = aggregate supply, is called effective demand.

## 4.2 Concept of Investment Multiplier and Its Relation with MPC and MPS

• **Investment Multiplier**

(a) **Meaning:** The ratio of change in national income ( $\Delta Y$ ) due to a change in investment ( $\Delta I$ ) is known as multiplier (K).

(b) **Formula:**

$$K = \frac{\Delta Y}{\Delta I} \quad \text{Or} \quad K \times \Delta I = \Delta Y$$

Where K is multiplier,  $K = 1/1 - MPC$  Or  $K = 1 / MPS$

(c) **Derivation of Formula:** As we know that,  $Y = C + I$  ... (1)

Multiplying the whole equation by  $\Delta$ , we get,  $\Delta Y = \Delta C + \Delta I$  ... (2)

Dividing both sides of 2 by  $\Delta Y$ , we get,

$$\frac{\Delta Y}{\Delta Y} = \frac{\Delta C}{\Delta Y} + \frac{\Delta I}{\Delta Y} \quad \dots(3) \quad \text{OR} \quad 1 = \frac{\Delta C}{\Delta Y} + \frac{\Delta I}{\Delta Y} \quad \dots(4)$$

Rearranging 4, we get,  $\frac{\Delta I}{\Delta Y} = 1 - \frac{\Delta C}{\Delta Y}$  ... (5)

OR Reciprocately,  $= \frac{\Delta Y}{\Delta I} = \frac{1}{1 - \frac{\Delta C}{\Delta Y}}$  ... (6)

As we know,  $K = \frac{\Delta Y}{\Delta I}$  and  $\frac{\Delta C}{\Delta Y} = MPC$ , we get,  $K = \frac{1}{1 - MPC}$

Since,  $MPC + MPS = 1$ , we obtain,  $K = \frac{1}{MPS}$

**(d) Diagrammatical Representation of Multiplier**

(i) Through Aggregate Demand and Aggregate Supply Approach

$$K = \frac{\Delta Y}{\Delta I} = \frac{YY_1}{BA}$$

(ii) Through Saving and Investment Approach

$$K = \frac{\Delta Y}{\Delta I} = \frac{YY_1}{BA}$$

**(e) Maximum Value of Multiplier**

(i) The multiplier can have the maximum value if MPC = 1.

As we know,

$$K = \frac{1}{1 - MPC}; \quad K = \frac{1}{1 - 1} = \infty$$

(ii) The multiplier can have the maximum value if MPS = 0. As we know,

$$K = \frac{1}{MPS} = \frac{1}{0} = \infty$$

**(f) Minimum Value of Multiplier**

(i) The multiplier can have the minimum value if MPC becomes zero (0). As we know,

$$K = \frac{1}{1 - MPC}; \quad K = \frac{1}{1 - 0} = 1$$

(ii) The multiplier can have the minimum value if MPS = 1. As we know,

$$K = \frac{1}{MPS} = \frac{1}{1} = 1$$

**(g) Relationship between Marginal Propensity to Consume (MPC) and multiplier.**

(i) If we put maximum value of MPC, i.e., 1, we get maximum value of multiplier, i.e.,  $\infty$ .

(ii) As against it, if we put minimum value of MPC, i.e., 0, we get the minimum value of multiplier, i.e. 1.

(iii) So, positive relationship exists between MPC and multiplier. It means when MPC increases, the multiplier also increases and vice-versa.

$$MPC \uparrow \rightarrow K \uparrow$$

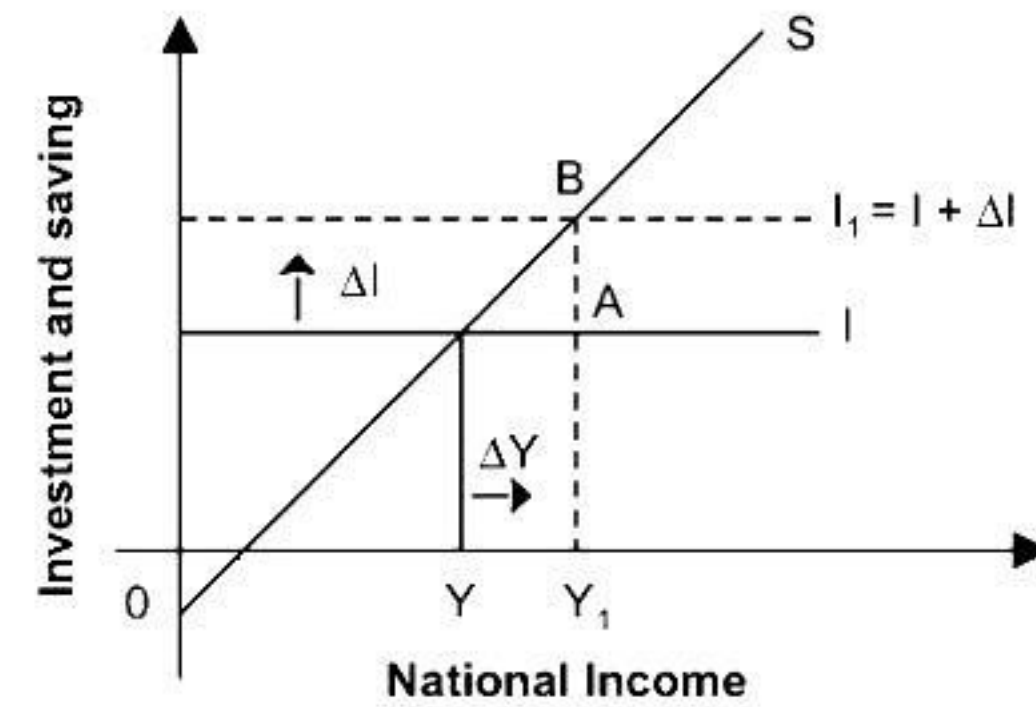
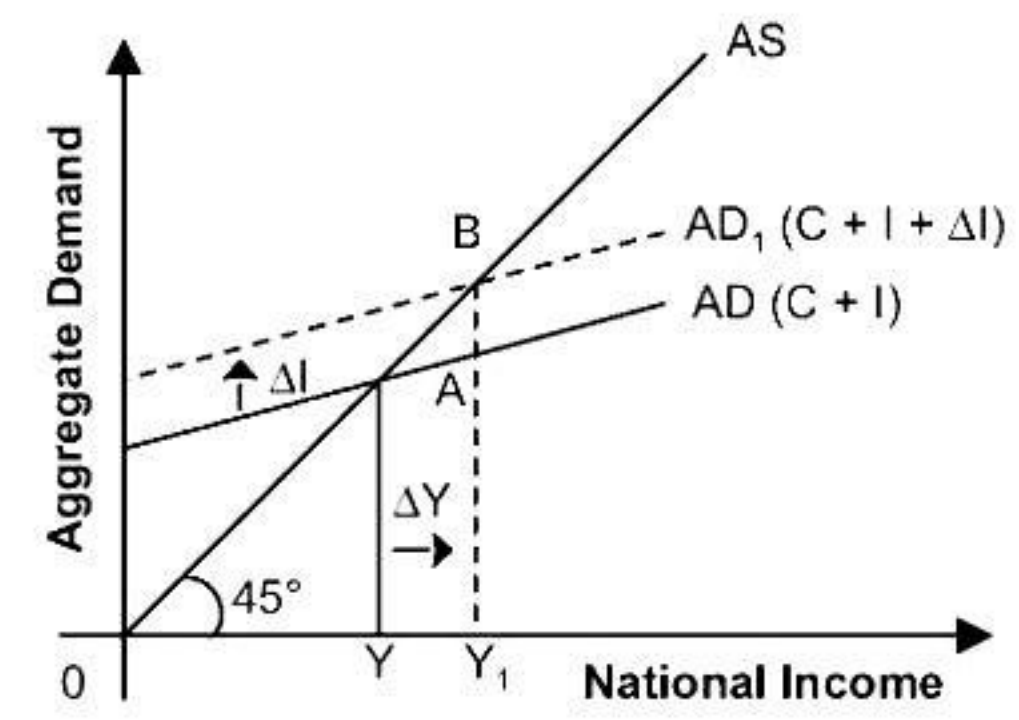
**(h) Relationship between Marginal Propensity to Save (MPS) and multiplier.**

(i) If we put minimum of MPS i.e. 0, we get maximum value of multiplier, i.e.,  $\infty$ .

(ii) As against it, if we get maximum value of MPS, i.e., 1, if we get minimum value of multiplier, i.e., 1.

(iii) Hence, inverse relationship exists between MPS and multiplier. It means if MPS increases, the multiplier decreases and vice-versa.

$$MPS \uparrow \rightarrow K \downarrow$$



**4.3 Working of Multiplier or Multiplier Process**

- (i) It can be illustrated with the help of a simple example. We know that one man's expenditure is another man's income.
- (ii) Suppose, the government of a country spends ₹ 100 crore on building roads. National income of the country automatically rises by ₹ 100 crore in Round 1.
- (iii) Now suppose MPC is 0.5, people working in the investment industry will spend ₹ 50 crore on new consumption goods.
- (iv) The consumer goods industry will have an extra income of ₹ 50 crore. Assume the MPC for the whole society is 0.5, people working in these consumer goods industry would again spend 50% of their additional income of ₹ 50 crore (which works out to be 25 crore) on more consumer goods.
- (v) These ₹ 25 crore will, thus, become the income for others. This will continue till total increase in income becomes K times the increment of investment.
- (vi) The process of income generation has been shown in the following table:

Round Number	Increase in Investment ( $\Delta I$ )	Increase in Income ( $\Delta Y$ )	Increase in Consumption $\Delta(C)$
1	100	100 = $\Delta I$	50 (100 $\times$ 0.5)
2		50 = $b \Delta I$	25 (50 $\times$ 0.5)
3		25 = $b^2 \Delta I$	12.5 (25 $\times$ 0.5)
4		12.5 = $b^3 \Delta I$	6.25 (12.5 $\times$ 0.5)
5		6.25 = $b^4 \Delta I$	3.125 (6.25 $\times$ 0.5)
6		3.125 = $b^5 \Delta I$	1.56 (3.125 $\times$ 0.5)
7		1.56 = $b^6 \Delta I$	0.78 (1.56 $\times$ 0.5)
—	—	—	—
—	—	—	—
—	—	—	—
Total increase in Income = 200 crore			

Change in income ( $\Delta Y$ ) =  $\Delta I + b\Delta I + b^2\Delta I + b^3\Delta I + b^4\Delta I + \dots$

$$\Delta Y = \Delta I [1 + b + b^2 + b^3 + b^4 + \dots]$$

The term in square bracket is of the form of the sum of an infinite geometric progression series and can be written as,

$$1 + b + b^2 + b^3 + b^4 + \dots = \frac{1}{1 - b[MPC]} = \frac{1}{1 - 0.5} = 2$$

On the assumption that MPC for the community as a whole is 0.5, the initial investment of ₹ 100 crore would generate an additional income of ₹ 200 crore. The size of investment multiplier here is 2.

### EXERCISE

#### MCQs (1 Mark)

##### Questions 1 to 20 Carrying 1 Mark

1. The value of multiplier is: (Choose the correct alternative) [Delhi 2015]

- (a)  $\frac{1}{MPC}$                       (b)  $\frac{1}{MPS}$   
(c)  $\frac{1}{1 - MPS}$                       (d)  $\frac{1}{MPC - 1}$

Ans. (b)  $\frac{1}{MPS}$

2. If MPC = 1, the value of multiplier is: (choose the correct alternative) [AI 2015]

- (a) 0                                      (b) 1  
(c) Between 0 and 1                      (d) Infinity

Ans. (d) Infinity

3. Aggregate demand can be increased by: [Delhi 2017]

- (a) Increasing bank rate  
(b) Selling government securities by Reserve Bank of India  
(c) Increasing cash reserve ratio  
(d) None of the above

Ans. (d) None of the above

4. If the marginal propensity to consume is greater than marginal propensity to save, the value of the multiplier will be [AI 2017]

- (a) greater than 2                      (b) less than 2  
(c) equal to 2                              (d) equal to 5

Ans. (a) greater than 2

#### VSA Questions (1 Mark)

5. If planned savings are greater than planned investments, what will be its effect on inventories? [CBSE SP 2008]

Ans. The inventories will rise.

6. Give the meaning of ex-ante savings. [Delhi 2010]

Ans. In an economy what we plan (or intend or desire) to save during a particular period is called ex-ante saving.

7. What is ex-ante aggregate demand? [AI 2010]

Ans. Ex-ante aggregate demand is aggregate expenditure on ex-ante (planned) consumption and ex-ante (planned) investment that all sectors of the economy are willing to incur at each income level.

8. When is there the equilibrium level of national income? [AI 2010]

Ans. Condition to get equilibrium level of NY :

- (a) AD = AS  
(b) Investment = Saving

9. What can be the minimum value of investment multiplier? [Delhi 2009, 2012C]

Ans. (i) The multiplier can have the minimum value if MPC becomes zero (0). As we know,

$$K = \frac{1}{1 - MPC}; \quad K = \frac{1}{1 - 0} = 0$$

(ii) The multiplier can have the minimum value if MPS = 1. As we know,

$$K = \frac{1}{MPS} = \frac{1}{1} = 1$$

10. If marginal propensity to save is 0.1, calculate the value of multiplier. [Delhi, 2003]

Ans. Multiplier (K) =  $\frac{1}{1 - MPS} = \frac{1}{0.1} = 10$

11. If investment multiplier is 1, what will be the value of marginal propensity to consume? [Delhi 2009]

Ans. Multiplier (K) =  $\frac{1}{1 - MPC}$  ;  $\frac{1}{1 - MPC} = 1$

$1 - MPC = 0$  ;  $MPC = 0$

12. If the value of marginal propensity to save is 0.4, what will be the value of investment multiplier? [AI 2012C]

Ans. Multiplier (K) =  $\frac{1}{MPS} = \frac{1}{0.4} = 2.5$

13. What is the value of multiplier when MPC and MPS are equal?

Ans. If  $MPS = MPC$ ,  $MPC = 0.5$ ,  $MPS = 0.5$  [ $MPS + MPC = 1$ ]

Multiplier (K) =  $\frac{1}{MPS} = \frac{1}{0.5} = 2$

**True or False (1 Mark)**

State whether the following statements are true or false. Give reasons for your answer:

14. Inventories accumulate when planned investment is less than planned saving.

Ans. **True:** When planned investment is less than planned saving correspondingly output is more than aggregate demand because of stock piling of goods i.e., Inventories accumulated.

15. Value of investment multiplier varies between zero and infinity. [Delhi 2010]

Ans. **False:** The value of investment multiplier varies between unity and infinity.

This can be proved as follows,

When  $MPC = 0$ ,  $K = \frac{1}{1 - MPC} = \frac{1}{1 - 0} = 1$

When  $MPC = 1$ ,  $K = \frac{1}{1 - MPC} = \frac{1}{1 - 1} = \infty$

Thus, the minimum value of  $k$  is unity and the maximum value of  $K$  infinity. Symbolically,  $1 \leq K \leq \infty$ .

16. When marginal propensity to consume is zero, the value of investment multiplier will also be zero. [Delhi AI 2010]

Ans. **False:** When  $MPC = 0$ , the value of investment multiplier will be equal to unity.

This is shown as,

Multiplier (K) =

When  $MPC = 0$ ,  $K = \frac{1}{1 - 0} = 1$

17. When investment multiplier is 1, the value of marginal propensity to consume is zero. [CBSE (F) 2010]

Ans. The statement is **true**. When the value of  $k = 1$ ,  $MPC = 0$  It is shown as,

$K = \frac{1}{1 - MPC}$

Given,  $K = 1$ ,

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

$\Rightarrow 1 - MPC = 1 \Rightarrow MPC = 0$

Thus, when investment multiplier is 1, the value of MPC is zero.

18. There is an inverse relationship between the value of marginal propensity to save and investment multiplier. [Delhi AI 2010]

Ans. **True.** Higher the MPS, the lower the value of multiplier and lower the MPS the higher is the value of multiplier. This is shown as,

$K = \frac{1}{MPS}$

If  $MPS = 0.10$ ,  $K = \frac{1}{0.10} = 10$

If  $MPS = 0.25$ ,  $K = \frac{1}{0.25} = 4$

Thus, there is an inverse relationship between  $K$  and  $MPS$ .

19. When marginal propensity to consume is greater than marginal propensity to save, the value of investment multiplier would be greater than 5. [Delhi 2010]

Ans. **False: Case I**

When  $MPC > MPS$  (i.e.,  $MPC = 0.6$  and  $MPS = 0.4$ ), the value of the investment multiplier

$K = \frac{1}{MPS} = \frac{1}{0.4} = 2.5$

**Case II:** When  $MPC > MPS$  (i.e.,  $MPC = 0.9$  and  $MPS = 0.1$ ), the value of the investment multiplier,

$K = \frac{1}{MPS} = \frac{1}{0.1} = 10$

Thus, this statement is false because it is not true in all cases.

20. If the ratio of marginal propensity to consume and marginal propensity to save is 4 : 1, the value of investment multiplier will be 4. [Delhi AI 2010]

Ans. **False:** It is proved as follows,

$MPC : MPS = 4 : 1$  (Given)

Let  $MPS = x$ , then  $MPC = 4x$

As we know that  $MPC + MPS = 1$

$4x + x = 1$ ;  $5x = 1$ ;  $x = \frac{1}{5}$

$MPC = 4 \times MPS = 4 \times \frac{1}{5} = \frac{4}{5}$

$MPC = \frac{4}{5}$ ,  $MPS = \frac{1}{5}$

$K = \frac{1}{MPS} = \frac{1}{\frac{1}{5}} = 5$

Thus, the given statement is false. The value of investment multiplier is equal to 5 not that of 4.

**Note:** As per CBSE guidelines, no marks will be given if reason to the answer is not explained.

**SA Questions (3-4 Marks)**

**Questions 21 to 112 Carrying 3-4 Marks**

21. Explain the distinction between ex-ante measures and ex-post measures. [AI 2014C]

Asn.

Ex-ante measures	Basis	Ex-post measures
Ex-ante measures means something which is 'planned'	Meaning	Ex-post measures means something which is 'actual' or 'realised'
In an economy what we plan (or intend or desire) to invest during a particular period is called ex-ante investment.	Investment	In an economy what we actually invest or what we actually add to the physical assets of an economy is called ex-post (or realized) investment.
In an economy what we plan (or intend or desire) to save during a particular period is called ex-ante saving.	Saving	In an economy what we actually save or what is left after deducting consumption expenditure from income is called ex-post (or realized) saving.

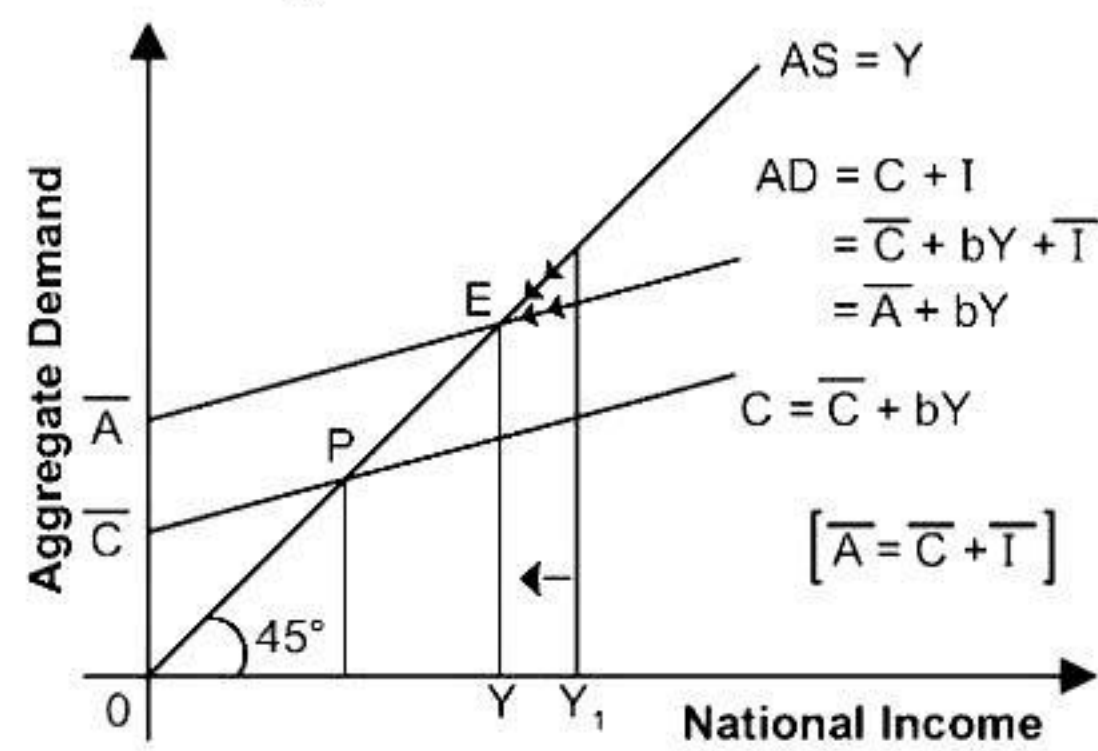
22. What happens to the level of national income when aggregate demand falls short of aggregate supply? OR In an economy, aggregate demand is less than aggregate supply. Explain the changes that will take place in this economy. [Delhi 2011C]

OR

What changes will take place in the economy when aggregate demand is less than aggregate supply? Explain. [AI 2012C]

Ans. (i) As we know that equilibrium level of national income is determined under the given condition of aggregate demand and aggregate supply, and has tendency to stick to that level i.e., where aggregate demand is equal to aggregate supply.

(ii) As is given in the examination problem that when aggregate demand falls short of aggregate supply, then national income will decrease as shown in the above mentioned diagram.



(iii) When  $AD < AS$  [At  $Y_1$ ], then there would be stockpiling and producers will produce less. National income will fall and as we know positive relationship exists between national income and consumption, so consumption will fall, which will thereby decrease the aggregate demand till we reach the equilibrium.

23. What happens to the level of national income when aggregate supply falls short of aggregate demand?

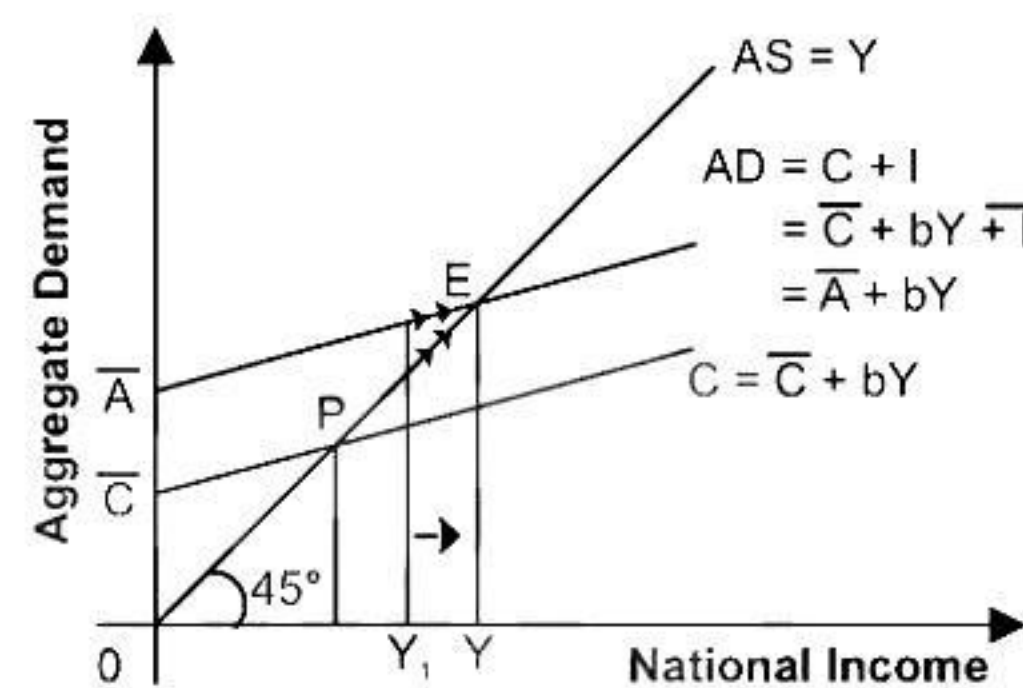
OR

In a economy, aggregate demand is greater than aggregate supply. Explain the changes that will take place in this economy. [Delhi 2011C]

Ans. (i) As we know that equilibrium level of national income is determined under the given condition of aggregate demand and aggregate supply, and has tendency to stick to that level i.e., where aggregate demand is equal to aggregate supply.

(ii) As is given in the examination problem that when aggregate supply falls short of aggregate demand, then national income will increase as shown in the given diagram:

(iii) When  $AD > AS$  [At  $Y_1$ ], then production will have to be increased to meet the excess demand. Consequently, national income will increase. As we know that positive relationship exists between national income and consumption. So consumption will increase, which will thereby increase the aggregate demand till we reach the equilibrium.



24. In an economy, planned saving is greater than planned investment. Explain how the economy achieves equilibrium level of national income. [CBSE SP 2014, AI 2004, Delhi 2004, 2005, 2009, AI 2014C]

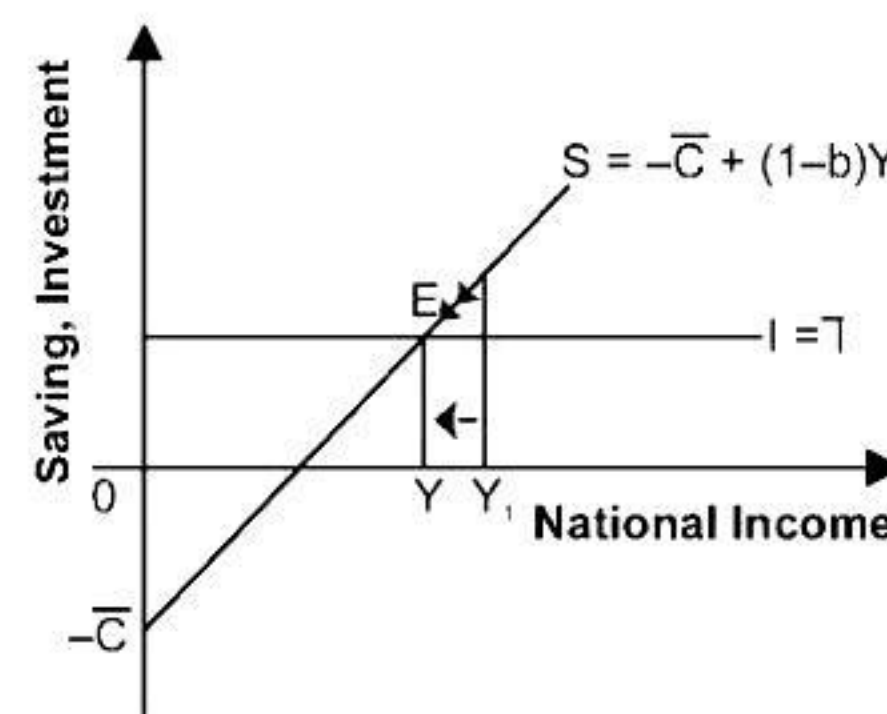
Ans. (i) It refers to the point that has come to be established under the given condition of aggregate demand and aggregate supply, and has tendency to stick to that level under this given condition.

Therefore,

$$AD = AS; \quad C + I = C + S$$

$$I = C + S - C; \quad I = S$$

(ii) As given in the examination problem, when planned saving is greater than planned investment, then national income will decrease as shown in the below diagram.



(iii) When saving > investment [at  $Y_1$ ], then there would be stockpiling and producers will produce less. National income will fall and as we know positive relationship exists between national income and saving, then saving will start falling until it becomes equal to

investment. It is here the equilibrium level of income is derived.

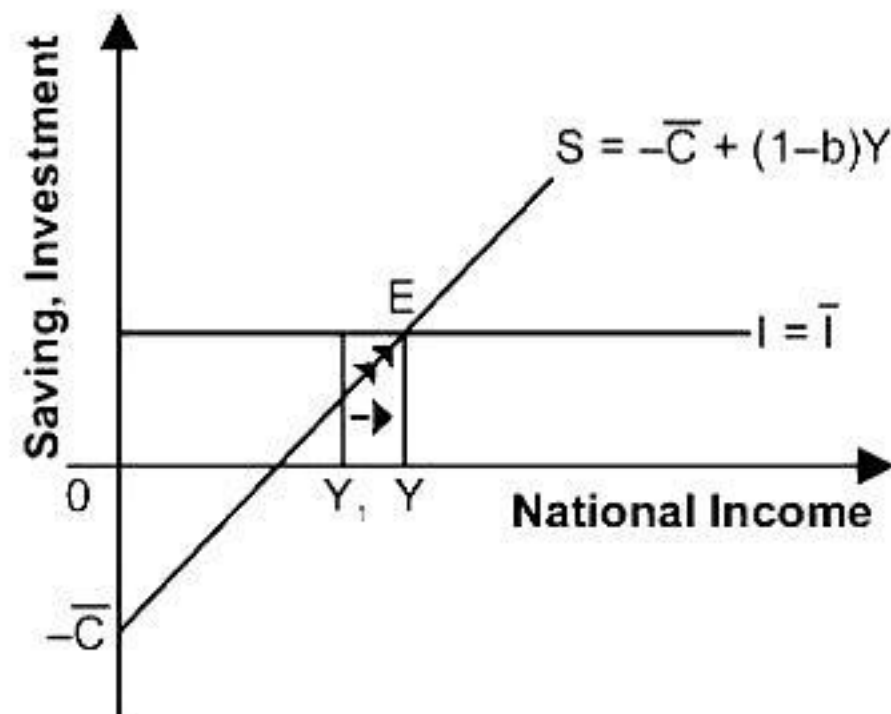
25. If planned saving is less than planned investment, what changes will bring economy in equilibrium?

Ans. (i) It refers to the point that has come to be established under the given condition of aggregate demand and aggregate supply, and has tendency to stick to that level under this given condition. Therefore,

$$AD = AS; \quad C + I = C + S$$

$$I = C + S - C; \quad I = S$$

(ii) As given in the examination problem, when planned saving is less than planned investment, then national income will decrease as shown in the below diagram.



(iii) When, investment > saving [at  $Y_1$ ], then production will have to be increased to meet the excess demand. Consequently, national income will increase leading to rise in saving until saving becomes equal to investment. It is here that equilibrium level of income is established because what the savers intend to save becomes equal to what the investors intend to invest.

26.  $C = 50 + 0.5Y$  is the consumption function; where  $C$  is consumption expenditure and  $Y$  is national income, and investment expenditure is ₹ 2000 in an economy. Calculate :

- (i) Equilibrium level of national income.  
 (ii) Consumption expenditure at equilibrium level of national income. [Delhi 2013 (Set III)]

Ans. (i) Equilibrium level of national income ( $Y$ )  
 At equilibrium,  
 $Y = C + I$  [AD = AS = Y and AD = C + I]  
 Or,  $Y = 50 + 0.5Y + 2,000$  [C = 50 + 0.5Y]  
 $0.5Y = 2,050$   
 $Y = ₹ 4,100$

(ii) Consumption expenditure at equilibrium level of national income.  
 Putting value of national income of 4,100 in consumption function, we get:  
 $C = 100 + 0.4 \times 4,100$   
 $C = ₹ 1,740$

(i) Equilibrium level of national income = ₹ 4,100.  
 (ii) Consumption expenditure at equilibrium level of national income = ₹ 1,740

27. In an economy,  $C = 200 + 0.75Y$  is the consumption function, where  $C$  is consumption expenditure and  $Y$  is national income, and investment expenditure is ₹ 4000 in an economy. Calculate equilibrium level of national income and consumption expenditure. [AI 2013 (Set II)]

Ans. (i) Equilibrium level of national income ( $Y$ )  
 At equilibrium,  
 $Y = C + I$  [AD = AS = Y and AD = C + I]  
 Or,  $Y = 200 + 0.75Y + 4,000$

$$[C = 200 + 0.75Y]$$

$$0.25Y = 4,200; \quad Y = ₹ 16,800$$

(ii) Consumption expenditure at equilibrium level of national income.

Putting value of national income of 16,800 in consumption function, we get;

$$C = 200 + 0.75 \times 16,800$$

$$C = ₹ 12,800$$

(i) Equilibrium level of national income = ₹ 16,800;

(ii) Consumption expenditure at equilibrium level of national income = ₹ 12,800.

28. From the following data about an economy, calculate (a) equilibrium level of national income and (b) total consumption expenditure at equilibrium level of national income.

(i)  $C = 200 + 0.5Y$  is the consumption function, where  $C$  is consumption expenditure and  $Y$  is national income.

(ii) Investment expenditure is 1500. [AI 2013 (Set III)]

Ans. (i) Equilibrium level of national income ( $Y$ )  
 At equilibrium,  
 $Y = C + I$  [AD = AS = Y and AD = C + I]  
 Or,  $Y = 200 + 0.5Y + 1,500$  [C = 200 + 0.5Y]  
 $0.5Y = 1,700; \quad Y = ₹ 3,400$

(ii) Consumption expenditure at equilibrium level of national income.

Putting value of national income of 3400 in consumption function, we get;

$$C = 200 + 0.5 \times 3,400$$

$$C = ₹ 1,900$$

(i) Equilibrium level of national income = ₹ 3,400.

(ii) Consumption expenditure at equilibrium level of national income = ₹ 1,900

29. Calculate equilibrium national income from the following data: [AI 2013 (Set I)]

(i) Consumption expenditure at zero income = ₹ 60

(ii) Marginal propensity to consume = 0.9

(iii) Investment = ₹ 100

Ans. Equilibrium level of national income ( $Y$ )  
 At Equilibrium,  
 $Y = C + I$  [AD = AS = Y and AD = C + I]  
 $Y = + \bar{C} + bY + \bar{I}$   
 Or,  $Y = 60 + 0.9Y + 100$  [C = 60 + 0.9Y]  
 $0.1Y = 160; \quad Y = ₹ 1,600$

30. Given consumption function  $C = 100 + 0.75Y$  (where  $C$  = consumption expenditure and  $Y$  = national income) and investment expenditure ₹ 1,000, calculate: (i) Equilibrium level of national income; (ii) Consumption expenditure at equilibrium level of national income. [Delhi 2009]

Ans. (i) Equilibrium level of national income ( $Y$ )  
 At equilibrium,  
 $Y = C + I$  [AD = AS = Y and AD = C + I]  
 Or,  $Y = 100 + 0.75Y + 1,000$

$$[C = 100 + 0.75Y]$$

$$0.25Y = 1,100; \quad Y = ₹ 4,400$$

(ii) Consumption expenditure at equilibrium level of national income.

Putting value of national income of 4,400 in consumption function, we get;

$$C = 100 + 0.75 \times 4,400$$

$$C = ₹ 3,400$$

(i) Equilibrium level of national income = ₹ 4,400;

- (ii) Consumption expenditure at equilibrium level of national income = ₹ 3,400
31. In an economy, the consumption function is  $C = 500 + 0.75Y$ , where  $C$  is consumption expenditure and  $Y$  is income. Calculate the equilibrium level of income and consumption expenditure when investment expenditure is ₹5,000. [CBSE, Foreign 2010 (I)]
- Ans.** (i) Equilibrium of national income ( $Y$ )  
At equilibrium,  
 $Y = C + I$  [AD = AS = Y and AD = C + I]  
Or,  $Y = 500 + 0.75Y + 5,000$  [C = 500 + 0.75Y]  
 $0.25Y = 5,500$   
 $Y = ₹22,000$
- (ii) Consumption expenditure at equilibrium level of national income.  
Putting value of National Income of 22,000 in consumption function, we get;  
 $C = 500 + 0.75 \times 22,000$   
 $C = ₹17,000$   
Equilibrium level of income = ₹22,000;  
Consumption expenditure at equilibrium level of income = ₹17,000.
32. Find national income from the following data: [Delhi 2012]  
Autonomous consumption = ₹100  
Marginal propensity to consume = 0.80  
Investment = ₹50
- Ans.** As given in the examination problem,  
Autonomous consumption or  $\bar{C} = 100$   
Autonomous investment or  $\bar{I} = ₹ 50$   
MPC or  $b = 0.80$   
So,  $AD = C + I = \bar{C} + bY + I$   
 $= 100 + 0.8Y + 50 = 150 + 0.8Y$   
As we know that the equilibrium level of national income in two sector model is determinate where,  
 $AS = AD; Y = 150 + 0.8Y$   
 $Y - 0.8Y = 150; Y(1 - 0.8) = 150$   
 $Y = \frac{150}{0.2} = ₹750.$
33. In an economy the autonomous investment is 60 and the marginal propensity to consume is 0.8. If the equilibrium level of income is 400, then the autonomous consumption is 30. True or False? Justify your answer. [CBSE SP 2014]
- Ans.** At equilibrium  $AD = C + I = Y$  ... (1)  
 $I = 60$   
 $C = \bar{C} + bY = \bar{C} + 0.8Y$   
If equilibrium level of income is 400, then  
 $C = \bar{C} + 0.8 \times 400 = \bar{C} + 320$   
Thus,  $AD = \bar{C} + 320 + 60$   
At equilibrium  $Y = AD$   
 $Y = \bar{C} + 380$   
 $400 - 380 = \bar{C}; \bar{C} = 20$   
The given value of autonomous consumption is incorrect. The correct value is 20.
34. In an economy,  $S = -50 + 0.5 Y$  is the saving function (where  $S$  = saving and  $Y$  = National Income) and investment expenditure is 7,000. Calculate. [AI 2009]
- (a) Equilibrium level of national income.

(b) Consumption expenditure at equilibrium level of national income.

**Ans.** (a) To be in equilibrium

$$S = I$$

$$-50 + 0.5 Y = 7000$$

$$0.5 Y = 7050$$

$$Y = \frac{7050}{0.5}$$

$$Y = 14100$$

(b) Saving at  $Y = 14100$

$$S = -50 + 0.5 (14100) = -50 + 7050$$

$$Y = C + S$$

$$14100 = C + 7000$$

$$C = 7100$$

35. In an economy, the ratio of average propensity to consume and average propensity to save is 5:3. The level of income is 6000. How much are the savings? Calculate [Delhi 2010C]

**Ans.** APC : APS = 5 : 3 [Given]

$$\text{So, } APC = \frac{5}{8} \text{ and } APS = \frac{3}{8}$$

We know that,

$$APS = \frac{S}{Y}$$

$$\frac{3}{8} = \frac{S}{6000}$$

$$\frac{18000}{8} = S$$

$$S = 2250$$

36. In an economy, total savings are ₹ 2,000 crores and the ratio of average propensity to save and average propensity to consume is 2 : 7. Calculate the level of income in the economy. [AI 2010C]

**Ans.** APS : APC = 2 : 7 [Given]

$$\text{So, } APS = \frac{2}{9} \text{ and } APC = \frac{7}{9}$$

We know that,

$$APS = \frac{S}{Y}; \frac{2}{9} = \frac{2000}{Y}$$

$$2Y = 18000; Y = 9000$$

37. Given that national income is ₹ 80 crore and consumption expenditure ₹ 64 crore, find out average propensity to save. When income rises to ₹ 100 crore and consumption expenditure to ₹ 78 crore, what will be the average propensity to consume and the marginal propensity to consume? [Delhi 2011]

**Ans.**

Y	C	S = Y - C	APS = S/Y	APC	MPC
80	64	16	0.2	0.8	-
100	78	22	0.22	0.78	0.7

38. If national income is ₹ 50 crore and saving ₹ 5 crore, find out average propensity to consume. When income rises to ₹ 60 crore and saving to ₹ 9 crore, what will be the average propensity to consume and the marginal propensity to save? [Delhi 2011]

Ans.

Y	S	C	APC = C/Y	MPS = $\frac{\Delta S}{\Delta Y}$
50	5	45	0.9	-
60	9	51	0.85	0.4

39. An economy is in equilibrium. Its consumption function is  $C = 300 + 0.8Y$  where C is consumption expenditure and Y is income and investment is ₹ 700. Find National Income. [Foreign 2011]

Ans.  $C = 300 + 0.8Y$   
 $I = 700$   
 $AD = C + I = 300 + 0.8Y + 700$   
 $= 1000 + 0.8Y$

At equilibrium,  
 $Y = AD; \quad Y = 1000 + 0.8Y$   
 $0.2Y = 1000; \quad Y = 5000$

40. An economy is in equilibrium. The economy's consumption function is  $C = 100 + 0.5Y$  where C is consumption expenditure and Y is National Income. National Income is 1,000. Find out investment expenditure in the economy. [Foreign 2011]

Ans.  $C = 100 + 0.5Y$   
 $Y = 1000$   
 Consumption at  $Y = 1000$   
 $C = 100 + 0.5(1000) = 600$   
 $AD = C + I = 600 + I$   
 At equilibrium,  
 $Y = AD$   
 $1000 = 600 + I$   
 $I = 400$

41. An economy is in equilibrium. Its National Income is ₹ 5000 and autonomous consumption expenditure is ₹ 500. What is the total consumption expenditure if marginal propensity to consume is 0.7? [Foreign 2011]

Ans.  $C = \bar{C} + bY = 500 + (0.7)(5000) = 4000$

42. Find 'investment' from the following:

National Income	₹ 500
Autonomous Consumption	₹ 100
Marginal propensity to consume	0.75

Ans.  $C = \bar{C} + bY = 100 + 0.75(500) = 475$   
 $AD = C + I = 475 + I$

At equilibrium,  
 $Y = AD$   
 $500 = 475 + I$   
 $I = 25$

43. Find consumption expenditure from the following:

Autonomous consumption	= 100 (₹)
Marginal propensity to consume	= 0.70
National Income	= 1,000 (₹)

Ans.  $C = \bar{C} + bY = 100 + 0.70(1000) = 800$

44. Find National Income from the following:

Autonomous Consumption	= ₹ 100
Marginal propensity to consume	= 0.60
Investment	= ₹ 200

Ans.  $C = \bar{C} + bY = 100 + 0.60Y$   
 $I = 200$   
 $AD = C + I = 100 + 0.60Y + 200$   
 $= 300 + 0.60Y$

At equilibrium,  
 $Y = AD; \quad Y = 300 + 0.6Y$   
 $0.4Y = 300; \quad Y = 750$

45.  $C = 100 + 0.4Y$  is the consumption function of an economy where C is consumption expenditure and Y is national income. Investment expenditure is 1,100. Calculate (i) Equilibrium level of national income. (ii) Consumption expenditure at equilibrium level of national income. [Delhi 2013 (Set I)]

Ans. (i) Equilibrium level of National Income (Y)  
 At Equilibrium,  
 $Y = C + I$  [AD = AS = Y and AD = C + I]  
 Or,  $Y = 100 + 0.4Y + 1,100$  [C = 100 + 0.4Y]  
 $0.6Y = 1,200$   
 $Y = ₹ 2,000$

- (ii) Consumption expenditure at equilibrium level of national income.

Putting value of National Income of 2000 in consumption function, we get,  
 $C = 100 + 0.4 \times 2,000$   
 $C = ₹ 900$

- (i) Equilibrium level of national income = ₹ 2,000  
 (ii) Consumption expenditure at equilibrium level of national income = ₹ 900

46. In an economy,  $S = -100 + 0.6Y$  is the saving function where S is Saving and Y is National Income. If investment expenditure is ₹ 1,100, Calculate:

- (i) Equilibrium level of national income.  
 (ii) Consumption expenditure at equilibrium level of national income. [Delhi 2013 (Set-II)]

Ans.  $C = Y - S$   
 $C = Y - (-100 + 0.6Y)$   
 $C = Y + 100 - 0.6Y$   
 $C = 100 + Y(1 - 0.6)$   
 $C = 100 + 0.4Y$

- (i) Equilibrium level of national income (Y)

At equilibrium,  
 $Y = C + I$  [AD = AS = Y and AD = C + I]  
 Or,  $Y = 100 + 0.4Y + 1,100$  [C = 100 + 0.4Y]  
 $0.6Y = 1,200; \quad Y = ₹ 2,000$

- (ii) Consumption expenditure at equilibrium level of national income.

Putting value of national income of ₹ 2000 in consumption function, we get;  
 $C = 100 + 0.4 \times 2,000$   
 $C = ₹ 900$

- (i) Equilibrium level of national income = ₹ 2,000;  
 (ii) Consumption expenditure at equilibrium level of national income = ₹ 900

47. From the data given below about an economy, calculate (a) investment expenditure and (b) consumption expenditure. [AI 2013 (Set I)]

- (i) Equilibrium level of income 5000  
 (ii) Autonomous consumption 500  
 (iii) Marginal propensity to consume 0.4

Ans. Autonomous consumption or  $\bar{C} = ₹ 500$   
 Equilibrium level of income or  $Y = ₹ 5,000$   
 $MPC$  or  $b = 0.4$

- (a) At equilibrium,  $Y = C + I$  [AD = AS = Y and AD = C + I]  
 $Y = 500 + 0.4Y + I$   
 $5000 = 500 + 0.4(5000) + I$   
 $5000 = 500 + 2000 + I$   
 $I = ₹2500$
- (b) As, we know,  $C = \bar{C} + bY$   
 $C = 500 + 0.4(5,000)$   
 $C = ₹ 2,500$
48. Calculate 'Investment' from the following data: [Delhi 2013 C (Set I)]
- |   |      |
|---|------|
| (i) Equilibrium income                      | ₹500 |
| (ii) Consumption expenditure at zero income | ₹50  |
| (iii) Marginal propensity to consume        | 0.7  |
- Ans.** Autonomous consumption or  $\bar{C} = ₹ 50$   
Equilibrium level of income or  $Y = ₹ 500$   
MPC or  $b = 0.7$   
At equilibrium,  $Y = C + I$  [AD = AS = Y and AD = C + I]  
 $Y = 50 + 0.7(Y) + I$   
 $500 = 50 + 0.7(500) + I$   
 $500 = 50 + 350 + I$   
 $I = ₹ 100$
49. Calculate equilibrium level of income from the following data: [Delhi 2013 C, Set III]
- |  |       |
|--|-------|
| (i) Consumption expenditure at zero income | ₹ 40  |
| (ii) Marginal propensity to consume        | ₹ 0.8 |
| (iii) Investment                           | ₹ 80  |
- Ans.** Equilibrium level of national income (Y)  
At Equilibrium,  $Y = C + I$   
[AD = AS = Y and AD = C + I]  
 $Y = \bar{C} + bY + I$   
Or,  $Y = 40 + 0.8Y + 80$  [C = 40 + 0.8Y]  
 $0.2Y = 120$   
 $Y = ₹ 600$
50. In a two-sector economy the saving and investment functions are;  
 $S = -20 + 0.4Y$ ;  $I = -5 + 0.2Y$   
What will be the equilibrium level of income?
- Ans.**  $S = I$   
 $-20 + 0.4Y = -5 + 0.2Y$   
 $0.4Y - 0.2Y = -5 + 20$   
 $Y = \frac{15}{0.2} = ₹75$
51. Calculate Marginal Propensity to Consume from the following: [AI 2013C Set III]
- |  |       |
|--|-------|
| (i) Consumption expenditure at zero income | ₹ 70  |
| (ii) Equilibrium income                    | ₹ 700 |
| (iii) Investment                           | ₹ 140 |
- Ans.**  $C = \bar{C} + bY = 70 + b \cdot 700$   
 $I = 140$   
 $AD = C + I = 70 + 700b + 140$   
 $= 210 + 700b$   
At equilibrium,  
 $Y = AD$   
 $700 = 210 + 700b$ ;  $b = 0.7$
52. Calculate investment expenditure from the following data about an economy which is in equilibrium: [Delhi 2014]
- |                                    |         |
|------------------------------------|---------|
| National income                    | = 1,000 |
| Marginal propensity to save        | = 0.25  |
| Autonomous consumption expenditure | = 200   |

- Ans.**  $C = \bar{C} + bY = 200 + 0.75(1000) = 950$   
 $AD = C + I = 950 + I$   
At equilibrium,  
 $Y = AD$   
 $1000 = 950 + I$   
 $I = 50$
53. Calculate autonomous consumption expenditure from the following data about an economy which is in equilibrium. [Delhi 2014]
- |                             |         |
|-----------------------------|---------|
| National income             | = 1,200 |
| Marginal propensity to save | = 0.20  |
| Investment expenditure      | = 100   |
- Ans.**  $C = \bar{C} + bY = \bar{C} + 0.80(1200) = \bar{C} + 960$   
 $I = 100$   
 $AD = C + I = \bar{C} + 960 + 100$   
 $= \bar{C} + 1060$   
At equilibrium,  
 $Y = AD$   
 $1200 = \bar{C} + 1060$   
 $\bar{C} = 140$
54. Calculate marginal propensity to consume from the following data about an economy which is in equilibrium. [Delhi 2014]
- |                                    |         |
|------------------------------------|---------|
| National Income                    | = 1,500 |
| Autonomous consumption expenditure | = 300   |
| Investment expenditures            | = 300   |
- Ans.**  $C = \bar{C} + bY = 300 + 1500b$   
 $I = 300$   
 $AD = C + I = 300 + 1500b + 300$   
 $= 600 + 1500b$   
At equilibrium,  
 $Y = AD$ ;  $1500 = 600 + 1500b$   
 $b = 0.6$
55. Calculate investment expenditure from the following data about an economy which is in equilibrium: [AI 2014]
- |                                    |         |
|------------------------------------|---------|
| National Income                    | = 1,000 |
| Marginal Propensity to Save        | = 0.20  |
| Autonomous consumption expenditure | = 100   |
- Ans.**  $C = \bar{C} + bY = 100 + 0.80(1000) = 900$   
 $AD = C + I = 900 + I$   
At equilibrium,  
 $Y = AD$   
 $1000 = 900 + I$   
 $I = 100$
56. Calculate Autonomous Consumption Expenditure from the following data about an economy which is in equilibrium: [AI 2014]
- |                             |        |
|-----------------------------|--------|
| National Income             | = 500  |
| Marginal Propensity to Save | = 0.30 |
| Investment expenditure      | = 100  |
- Ans.**  $C = \bar{C} + bY = \bar{C} + (0.70) 500 = \bar{C} + 350$   
 $I = 100$   
 $AD = C + I = \bar{C} + 350 + 100$   
 $= \bar{C} + 450$   
At equilibrium,  
 $Y = AD$ ;  $500 = \bar{C} + 450$   
 $\bar{C} = 50$

57. On the basis of the following information about an economy, calculate its equilibrium level of income:

[Delhi 2014C]

- (i) Autonomous consumption = 300  
(ii) Marginal propensity to consume = 0.5  
(iii) Investment = 6000

Ans.  $C = \bar{C} + bY = 300 + 0.5Y$   
 $I = 6000$   
 $AD = C + I = 300 + 0.5Y + 6000$   
 $= 6300 + 0.5Y$

At equilibrium,  
 $Y = AD; Y = 6300 + 0.5Y$   
 $0.5Y = 6300; Y = 12600$

58. From the following data about an economy, calculate its equilibrium level of income:

[AI 2014C; Delhi 2015 (C)]

- (i) Autonomous Consumption = 200  
(ii) Marginal propensity to consume = 0.9  
(iii) Investment = 1,000

Ans.  $C = \bar{C} + bY = 200 + 0.9Y$   
 $I = 1000$   
 $AD = C + I$   
 $= 200 + 0.9Y + 1000$   
 $= 1200 + 0.9Y$

At equilibrium,  
 $Y = AD$   
 $Y = 1200 + 0.9Y$   
 $0.1Y = 1200$   
 $Y = 12000$

59. An economy is in equilibrium. Calculate national income from the following:

[Delhi 2015]

- Autonomous Consumption = 100  
Marginal Propensity to Save = 0.2  
Investment Expenditure = 200

Ans.  $C = \bar{C} + bY = 100 + 0.8Y$   
 $I = 200$   
 $AD = C + I = 100 + 0.8Y + 200$   
 $= 300 + 0.8Y$

At equilibrium,  
 $Y = AD; Y = 300 + 0.8Y$   
 $0.2Y = 13200; Y = 15000$

60. An economy is in equilibrium. Find 'autonomous consumption' from the following:

[Delhi 2015]

- National Income = 1,000  
Marginal Propensity to consume = 0.8  
Investment Expenditure = 100

Ans.  $C = \bar{C} + bY = \bar{C} + 0.8(1000) = \bar{C} + 800$   
 $I = 100$   
 $AD = C + I = \bar{C} + 800 + 100$   
 $= \bar{C} + 900$

At equilibrium,  
 $Y = AD; Y = \bar{C} + 900$   
 $\bar{C} = 100$

61. An economy is in equilibrium. Find Marginal Propensity to Consume from the following:

[Delhi 2015]

- National Income = 2,000  
Autonomous Consumption = 400  
Investment Expenditure = 200

Ans.  $C = \bar{C} + bY = 400 + b(2000)$   
 $I = 200$   
 $AD = C + I = 400 + 2000b + 200$   
 $= 600 + 2000b$

At equilibrium,

$Y = AD$   
 $2000 = 600 + 2000b; b = 0.7$

62. An economy is in equilibrium. Calculate the Investment Expenditure from the following:

[AI 2015]

- National Income = 800  
Marginal Propensity to Save = 0.3  
Autonomous Consumption = 100

Ans.  $C = \bar{C} + bY = 100 + 0.7(800) = 660$   
 $AD = C + I = 660 + I$

At equilibrium,  
 $Y = AD$   
 $800 = 660 + I; I = 140$

63. An economy is in equilibrium. Calculate the Marginal Propensity to Save from the following:

[AI 2015]

- National Income = 1,000  
Autonomous Consumption = 100  
Investment = 120

Ans.  $C = \bar{C} + bY = 100 + b(1000)$   
 $I = 120$   
 $AD = C + I = 100 + 1000b + 120$   
 $= 220 + 1000b$

At equilibrium,  
 $Y = AD$   
 $1000 = 220 + 1000b; b = 0.78$   
Then,  $MPS = 1 - MPC = 1 - 0.78$   
 $MPS = 0.22$

64.  $S = -100 + 0.2y$  is the saving function in an economy. Investment expenditure is 5,000. Calculate the equilibrium level of income.

[Delhi 2015C]

Ans.  $S = -100 + 0.2Y$   
 $I = 500$   
At equilibrium,  
 $S = I; -100 + 0.2Y = 5000$   
 $0.2Y = 5100; Y = 25500$

65. An economy is in equilibrium. Calculate Marginal Propensity to Consume:

[AI 2016]

- National Income = 1,000  
Autonomous Consumption Expenditure = 200  
Investment expenditure = 100

Ans.  $C = \bar{C} + bY = 200 + 1000b$   
 $I = 100$   
 $AD = C + I = 200 + 1000b + 100$   
 $= 300 + 1000b$

At equilibrium,  
 $Y = AD$   
 $1000 = 300 + 1000b; b = 0.7$

66. An economy is in equilibrium. Find investment expenditure.

[Delhi 2016]

- National Income = 1,200  
Autonomous Consumption expenditure = 150  
Marginal Propensity to Consume = 0.8

Ans.  $C = \bar{C} + bY = 150 + 0.8(1200) = 1110$   
 $AD = C + I = 1110 + I$

At equilibrium,  
 $Y = AD$   
 $1200 = 1110 + I; I = 90$

67. From the following data calculate marginal propensity to consume.

[Delhi 2016C]

- (i) Equilibrium level of income = 2,000  
(ii) Autonomous consumption = 200  
(iii) Investment expenditure = 800

**Ans.**  $C = \bar{C} + bY = 200 + 2000b$   
 $I = 800$   
 $AD = C + I = 200 + 2000b + 800$   
 $= 1000 + 2000b$

At equilibrium,  
 $Y = AD$   
 $2000 = 1000 + 2000b$ ;  **$b = 0.5$**

**68.** If in an economy: [SP 2017]

- (a) Consumption function is given by  $C = 100 + 0.75Y$ , and  
 (b) Autonomous investment is 150 crores.  
 Estimate (i) Equilibrium level of income and (ii) Consumption and Savings at the equilibrium level of income.

**Ans.** (i) At equilibrium,  
 $Y = AD$ ;  $Y = C + I$   
 $Y = 100 + 0.75Y + 150$   
 $Y = 250 + 0.75Y$   
 $0.25Y = 250$ ;  **$Y = 1000$**   
 (ii)  $C = 100 + 0.75(1000)$   
 **$C = 850$**   
 $S = Y - C = 1000 - 850$   
 **$S = 150$**

**69.** Explain the meaning of investment multiplier. What can be its minimum and maximum value? [Delhi 2014C]

**Ans.** The ratio of change in national income ( $\Delta Y$ ) due to a change in investment ( $\Delta I$ ) is known as multiplier ( $K$ ).

$$K = \frac{\Delta Y}{\Delta I} \quad \text{OR} \quad K \times \Delta I = \Delta Y$$

Where  $K$  is multiplier,

$$K = \frac{1}{1 - MPC} \quad \text{OR} \quad K = \frac{1}{MPS}$$

**Maximum Value of Multiplier**

- (i) The multiplier can have the maximum value if  $MPC = 1$ .  
 As we know,

$$K = \frac{1}{1 - MPC}; \quad K = \frac{1}{1 - 1} = \infty$$

- (ii) The multiplier can have the maximum value if  $MPS = 0$ .  
 As we know,

$$K = \frac{1}{MPS} = \frac{1}{0} = \infty$$

**Minimum Value of Multiplier**

- (i) The multiplier can have the minimum value if  $MPC$  becomes zero (0). As we know,

$$K = \frac{1}{1 - MPC}; \quad K = \frac{1}{1 - 0} = 1$$

- (ii) The multiplier can have the minimum value if  $MPS = 1$ .  
 As we know,

$$K = \frac{1}{MPS} = \frac{1}{1} = 1$$

**70.** Discuss relationship between  $MPC$  and multiplier. [AI 2006, Delhi 2011, 2015C]

**Ans.** (i) If we put maximum value of  $MPC$ , i.e., 1, we get maximum value of multiplier, i.e.,  $\infty$ .

(ii) As against it, if we put minimum value of  $MPC$ , i.e., 0, we get the minimum value of multiplier, i.e., 1.

(iii) So, positive relationship exists between  $MPC$  and multiplier. It means when  $MPC$  increases, the multiplier also increases and vice-versa.

$$MPC \uparrow \rightarrow K \uparrow$$

**71.** Discuss relationship between  $MPS$  and multiplier. [Delhi 2004C, AI 2007]

**Ans.** (i) If we put minimum of  $MPS$  i.e., 0, we get maximum value of multiplier, i.e.,  $\infty$ .

(ii) As against it if we get maximum value of  $MPS$ , i.e., 1, if we get minimum value of multiplier, i.e., 1.

(iii) Hence, inverse relationship exists between  $MPS$  and multiplier. It means if  $MPS$  increases, the multiplier decreases and vice-versa.

$$MPS \uparrow \rightarrow K \downarrow$$

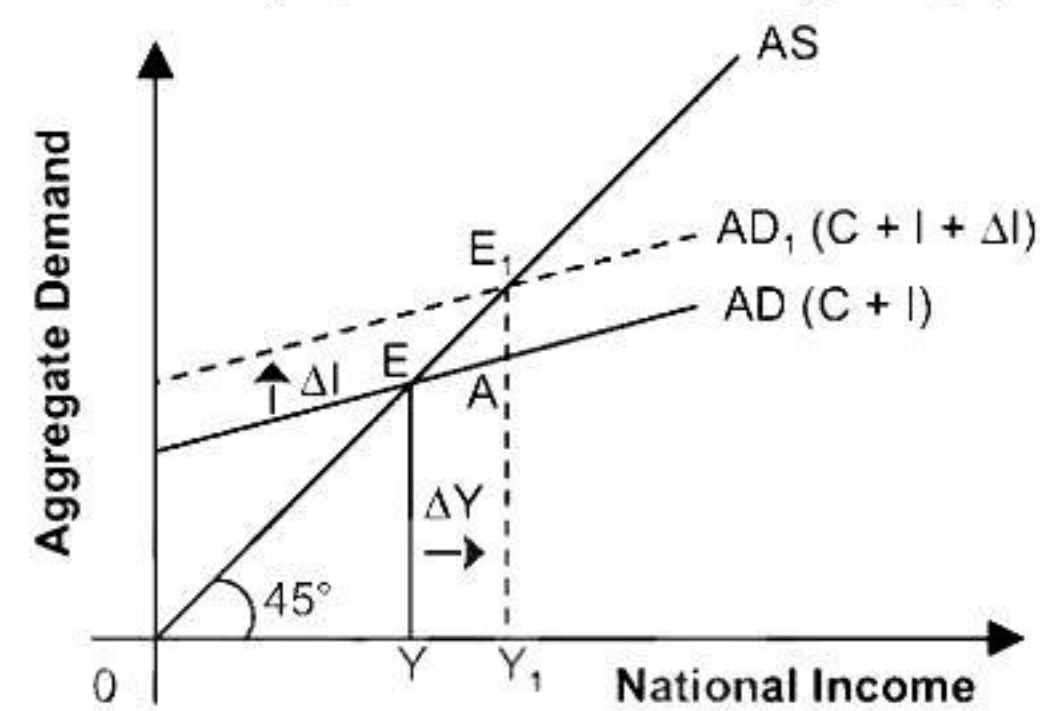
**72.** If marginal propensity to save is one, what is the value of multiplier? What can you say about the change in national income, given change in investment? [Delhi 2010C]

**Ans.** (i) The multiplier can have the minimum value if  $MPS = 1$ . As we know,

(ii) Hence, inverse relationship exists between  $MPS$  and multiplier. It means if  $MPS$  increases, the multiplier decreases and vice-versa.

$$MPS \uparrow \rightarrow K \downarrow$$

(iii) The ratio of change in national income ( $\Delta Y$ ) due to a change in investment ( $\Delta I$ ) is known as multiplier ( $K$ ).



When  $MPS = 1$ , then  $K = 1$  it means change in investment leads to equal change in income.

**73.** What is the range of values of investment multiplier? Clarify the relation of investment Multiplier with marginal propensity to consume ( $MPC$ ) and with marginal propensity to save ( $MPS$ ). [CBSE SP 2017]

**Ans.** The value of investment multiplier varies between unity and infinity.

**Relationship between  $MPC$  and multiplier**

**Note:** Refer answer 70

**Relationship between  $MPS$  and multiplier.**

**Note:** Refer answer 71

**74.** As a result of increase in investment by ₹125 crore, national income increases by ₹ 500 crore. Calculate marginal propensity to consume. [Delhi, 2008]

**Ans.** Multiplier,

$$K = \frac{\text{Change in Income } (\Delta Y)}{\text{Change in Investment } (\Delta I)} = \frac{500}{125} = 4$$

We also know that Multiplier

$$(K) = \frac{1}{1 - MPC}; \quad 4 = \frac{1}{1 - MPC}$$

$$4 - 4MPC = 1; \quad MPC = \frac{3}{4} = 0.75$$

**75.** As a result of increase in investment, national income increases by ₹ 600 crore. If marginal propensity to consume is 0.75, calculate the increase in investment. [Delhi, 2008]

**Ans.** Multiplier

$$(K) = \frac{1}{1 - MPC} = \frac{1}{1 - 0.75} = \frac{1}{0.25} = 4$$

We also know that

$$K = \frac{\text{Change in Income } (\Delta Y)}{\text{Change in Investment } (\Delta I)}$$

$$4 = \frac{600}{\text{Change in Investment } (\Delta I)}$$

Hence, change in investment  $(\Delta I) = ₹ 150$  crore

Increase in investment = ₹ 150 crore

- 76.** If marginal propensity to consume is 0.9, what is the value of multiplier? How much investment is needed if national income increases by ₹ 5,000 crore? [Delhi, 2008]

**Ans.** Multiplier

$$(K) = \frac{1}{1 - MPC} = \frac{1}{1 - 0.9} = \frac{1}{0.1} = 10$$

We also know that

$$K = \frac{\text{Change in Income } (\Delta Y)}{\text{Change in Investment } (\Delta I)}$$

$$10 = \frac{5,000}{\text{Change in Investment } (\Delta I)}$$

Hence, change in investment  $(\Delta I) = ₹ 500$  crores

Multiplier  $(K) = 10$ ; increase in investment = ₹ 500 crore

- 77.** An increase of ₹ 250 crore in investment in an economy resulted in total increase in income of ₹ 1,000 crore. Calculate the following: (a) Marginal propensity to consume (MPC), (b) Change in saving, (c) Change in consumption expenditure, (d) Value of multiplier. [CBSE, SP 2008]

**Ans.** Multiplier,

$$K = \frac{\text{Change in Income } (\Delta Y)}{\text{Change in Investment } (\Delta I)} = \frac{1,000}{250} = 4$$

(a) We know that Multiplier

$$(K) = \frac{1}{1 - MPC}; \quad 4 = \frac{1}{1 - MPC}$$

$$4 - 4MPC = 1; \quad MPC = \frac{3}{4} = 0.75$$

$$(b) \text{ MPC} = \frac{\text{Change in Consumption } (\Delta C)}{\text{Change in Income } (\Delta Y)}$$

$$0.75 = \frac{\text{Change in Consumption } (\Delta C)}{1,000}$$

So, change in consumption expenditure  $(C) = ₹ 750$  crore  
Change in Saving = Change in Income - Change in Consumption Expenditure

So, Change in Saving = ₹ 1,000 crore - ₹ 750 crore = ₹ 250 crore

- (a) Marginal propensity to consume = 0.75  
(b) Change in saving = ₹ 250 crore  
(c) Change in consumption expenditure = ₹ 750 crore  
(d) Value of multiplier = 4

- 78.** In an economy, an increase in investment leads to increase in national income which is three times more than the increase in investment. Calculate marginal propensity to consume. [Delhi, AI 2008]

**Ans.** Let increase in investment =  $\Delta I$

Then, increase in national income  
=  $\Delta I + 3\Delta I = 4\Delta I$

Investment Multiplier

$$(K) = \frac{\text{Change in Income } (\Delta Y)}{\text{Change in Investment } (\Delta I)} = \frac{4\Delta I}{\Delta I} = 4$$

We know that

$$K = \frac{1}{1 - MPC}; \quad 4 = \frac{1}{1 - MPC}$$

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

Hence,  $MPC = 1 - 0.25 = 0.75$

Marginal propensity to consume (MPC) = 0.75

- 79.** There is increase in investment of ₹ 100 crore in an economy. MPC is 1. What can you say about the total increase in income? Calculate. [Delhi 2009C]

**Ans.**  $\Delta I = 100$  crore

$MPC = 1$ ;  $\Delta Y = ?$

$$\text{Multiplier} = K = \frac{1}{1 - MPC}; \quad K = \frac{1}{1 - 1} = \infty$$

$$K = \frac{\Delta Y}{\Delta I}; \quad \infty = \frac{\Delta Y}{100}$$

Total increase in income will be infinity

- 80.** In an economy every time the income rises 75 per cent of it is spent on consumption. Now suppose in the same economy investment rises by ₹ 750 crore. Calculate the following:

(i) Change in income

(ii) Change in saving

[Delhi 2009C]

**Ans.** Given:  $MPC = 0.75$

(as 75% of increase in income is spent on consumption)

$\Delta I = 750$  (given)

$$(i) \quad K = \frac{1}{1 - MPC} = \frac{1}{1 - 0.75} = 4$$

$$K = \frac{\Delta Y}{\Delta I}; \quad 4 = \frac{\Delta Y}{750}; \quad \Delta Y = ₹ 3,000 \text{ crore}$$

$$(ii) \quad \text{MPS} = 1 - \text{MPC}$$

$$\text{MPS} = 1 - 0.75 = 0.25$$

$$\text{MPS} = \frac{\Delta S}{\Delta Y}; \quad 0.25 = \frac{\Delta S}{3000}; \quad \Delta S = ₹ 750 \text{ crore}$$

- 81.** In an economy, 75 per cent of the increase in income is spent on consumption. Investment is increased by ₹ 1,000 crore. Calculate: (a) total increase in income; (b) total increase in consumption expenditure. [Delhi, 2010]

**Ans.** Given:  $MPC = 0.75$  (as 75% of increase in income is spent on consumption)

$$\text{Multiplier } (K) = \frac{1}{1 - MPC} = \frac{1}{1 - 0.75} = \frac{1}{0.25} = 4$$

We also know that

$$K = \frac{\text{Change in Income } (\Delta Y)}{\text{Change in Investment } (\Delta I)}$$

$$4 = \frac{\text{Change in Income } (\Delta Y)}{1000 \text{ crore}}$$

So, change in income ( $\Delta Y$ ) = ₹ 4,000 crore

$$MPC = \frac{\text{Change in Consumption } (\Delta C)}{\text{Change in Income } (\Delta Y)}$$

$$0.75 = \frac{\text{Change in Consumption } (\Delta C)}{4,000}$$

So, change in consumption ( $\Delta C$ ) = ₹ 3,000 crore

(a) Total increase in income = ₹ 4,000 crore

(b) Total increase in Consumption Expenditure = ₹ 3,000 crore

82. If marginal propensity to save is 0.2, how much new investment is required to make the National Income rise by ₹ 600 crores? Calculate. [AI 2008]

Ans.  $MPS = 0.2$

$$K = \frac{1}{MPS} = \frac{1}{0.2} = 5; \quad K = \frac{\Delta Y}{\Delta I}$$

$$5 = \frac{600}{\Delta I}; \quad \Delta I = \frac{600}{5} = 120$$

83. In an economy, as a result of increase in investment by ₹ 100 crores, national income rises by ₹ 1,000 crores. Find marginal propensity to consume. [Delhi 2010C]

Ans.  $K = \frac{\Delta Y}{\Delta I} = \frac{1000}{100} = 10$

$$K = \frac{1}{MPS} = 10; \quad MPS = \frac{1}{10} = 0.1$$

Then,  $MPC = 1 - MPS = 1 - 0.1 = 0.9$

84. In an economy, investment is increased by ₹ 2,000 crores. Calculate the change in total income, if marginal propensity to save is 0.25. [AI 2010C]

Ans.  $MPS = 0.25$

$$K = \frac{1}{MPS} = \frac{1}{0.25} = 4$$

$$K = \frac{\Delta Y}{\Delta I}; \quad 4 = \frac{\Delta Y}{2000}; \quad \Delta Y = 8000$$

85. Find the value of multipliers given (a) marginal propensity to consume = 1 and (b) marginal propensity to save = 1. [AI 2010C]

Ans. (a)  $MPC = 1$

$$K = \frac{1}{1 - MPC} = \frac{1}{1 - 1} = \frac{1}{0} = \infty$$

(b)  $MPS = 1$

$$K = \frac{1}{MPS} = \frac{1}{1} = 1$$

86. In an economy the marginal propensity to consume is 0.75. Investment expenditure in the economy increases by ₹ 75 crore. Calculate the total increase in national income. [AI 2011 Set I]

Ans.  $MPC = 0.75$

$$K = \frac{1}{1 - MPC} = \frac{1}{1 - 0.75} = \frac{1}{0.25} = Y$$

$$K = \frac{\Delta Y}{\Delta I}; \quad Y = \frac{\Delta Y}{75}; \quad \Delta Y = 300$$

87. In an economy the marginal propensity to save is 0.40. National Income in the economy increase by ₹ 200 crore as a result of change in investment. Calculate the change in investment. [AI 2011 Set I]

Ans.  $MPS = 0.40$

$$K = \frac{1}{MPS} = \frac{1}{0.40} = 2.5; \quad K = \frac{\Delta Y}{\Delta I}$$

$$2.5 = \frac{200}{\Delta I}; \quad \Delta I = \frac{200}{2.5}; \quad \Delta I = 80$$

88. As a result of increase in investment by ₹ 60 crore, National Income rises by ₹ 240 crore. Calculate marginal propensity to consume. [AI 2011]

Ans.  $K = \frac{\Delta Y}{\Delta I} = \frac{240}{60}; \quad K = 4$

$$K = \frac{1}{1 - MPC}; \quad 4 = \frac{1}{1 - MPC}$$

$$4 - 4MPC = 1; \quad MPC = 4/3; \quad MPC = 0.75$$

89. In an economy, a 20 per cent increase in investment results in a 100 per cent increase in income. Calculate the marginal propensity to consume. [Delhi 2012C]

Ans.  $K = \frac{\Delta Y}{\Delta I} = \frac{100\%}{20\%} = 5$

$$K = \frac{1}{1 - MPC}; \quad 5 = \frac{1}{1 - MPC}$$

$$5 - 5MPC = 1; \quad 4/5 = MPC; \quad MPC = 0.80$$

90. Marginal propensity to consume is zero. Calculate the change in income if investment falls by ₹ 1,000 crores. [AI 2012C]

Ans.  $MPC = 0$

$$K = \frac{1}{1 - MPC} = \frac{1}{1 - 0} = \frac{1}{1} = 1$$

$$K = \frac{\Delta Y}{\Delta I}; \quad 1 = \frac{\Delta Y}{-1000}; \quad \Delta Y = -1000$$

91. In an economy, income increases from ₹ 5,000 crore to ₹ 6,000 crore as a result of 20 percent increase in investment. Calculate the value of investment multiplier. [AI 2012C]

Ans. Percentage change in income

$$= \frac{\Delta Y}{Y} \times 100 = \frac{1000}{5000} \times 100 = 20\%$$

$$K = \frac{\Delta Y}{\Delta I} = \frac{20\%}{20\%} = 1$$

92. The value of marginal propensity to consume is double the value of marginal propensity to save. Find the value of multiplier. [AI 2014C]

Ans. Let,  $MPS = x$

Then,  $MPC = 2x$

$$MPC + MPS = 1; \quad 2x + x = 1$$

$$3x = 1; \quad x = \frac{1}{3}$$

$$\text{So, } MPS = \frac{1}{3} \text{ and } MPC = \frac{2}{3}$$

$$K = \frac{1}{MPS} = \frac{1}{\frac{1}{3}} = 3$$

93. In an economy, investment increases from 300 to 500. As a result of this equilibrium level of income increase by 2000. Calculate the marginal propensity to consume. [AI 2015C]

$$\text{Ans. } K = \frac{\Delta Y}{\Delta I} = \frac{2000}{200} = 10; \quad K = \frac{1}{1 - \text{MPC}}$$

$$10 = \frac{1}{1 - \text{MPC}}$$

$$10 - 10 \text{ MPC} = 1; \quad \text{MPC} = \frac{9}{10} = 0.9$$

94. In an economy 20 per cent of increased income is saved. How much will be the increase in income if investment increases by 10,000? Calculate. [AI 2015C]

$$\text{Ans. } \text{MPS} = 0.2$$

$$K = \frac{1}{\text{MPS}} = \frac{1}{0.2} = 5; \quad K = \frac{\Delta Y}{\Delta I}$$

$$5 = \frac{\Delta Y}{10000}; \quad \Delta Y = 50000$$

95. In an economy autonomous consumption is 500, marginal propensity to save is 0.2 and investment expenditure is 2,000. Calculate its equilibrium level of income. [Delhi (C) 2016; AI 2015C]

$$\text{Ans. } C = \bar{C} + bY = 500 + 0.8 Y$$

$$I = 2000$$

$$AD = C + I = 500 + 0.8 Y + 2000$$

$$= 2500 + 0.8 Y$$

To be equilibrium

$$Y = AD; \quad Y = 2500 + 0.8 Y$$

$$0.2 Y = 2500; \quad Y = 12500$$

96. In an economy, investment is increased by ₹ 300 crore. If marginal propensity to consume is  $\frac{2}{3}$ , calculate increase in national income. [Delhi 2016]

$$\text{Ans. } \text{MPC} = \frac{2}{3}$$

$$K = \frac{1}{1 - \text{MPC}} = \frac{1}{1 - \frac{2}{3}} = \frac{1}{\frac{1}{3}} = 3$$

$$K = \frac{\Delta Y}{\Delta I}; \quad 3 = \frac{\Delta Y}{300}; \quad \Delta Y = 900$$

97. Suppose marginal propensity to consume is 0.8. How much increase in investment is required to increase national income by ₹ 2000 crore? Calculate. [Delhi 2016]

$$\text{Ans. } \text{MPC} = 0.8$$

$$K = \frac{1}{1 - \text{MPC}} = \frac{1}{1 - 0.8} = \frac{1}{0.2} = 5$$

$$K = \frac{\Delta Y}{\Delta I}; \quad 5 = \frac{2000}{\Delta I}$$

$$\Delta I = \frac{2000}{5} = 400; \quad \Delta I = 400$$

98. In an economy an increase in investment by ₹ 100 crore led to 'increase' in national income by ₹ 1000 crore. Find marginal propensity to consume. [Delhi 2016]

$$\text{Ans. } K = \frac{\Delta Y}{\Delta I} = \frac{1000}{100} = 10$$

$$K = \frac{1}{1 - \text{MPC}}; \quad 10 = \frac{1}{1 - \text{MPC}}$$

$$10 - 10 \text{ MPC} = 1; \quad \text{MPC} = \frac{9}{10} = 0.9$$

99. Calculate Marginal Propensity to consume from the following: [Delhi 2013 C]

(i) Equilibrium income	350
(ii) Consumption expenditure at zero income	20
(iii) Investment	50

$$\text{Ans. } C = \bar{C} + bY = 20 + b(350)$$

$$I = 50$$

$$AD = C + I = 20 + b(350) + 50 = 70 + 350 b$$

at equilibrium

$$Y = AD; \quad 350 = 70 + 350 b$$

$$280 = 350 b; \quad b = \frac{280}{350}; \quad b = 0.8$$

100. Calculate equilibrium national income from the following: [AI 2013 C]

(i) Consumption expenditure at zero income	₹ 60
(ii) Marginal propensity at zero income	0.9
(iii) Investment	₹ 100

$$\text{Ans. } C = \bar{C} + bY = 60 + 0.9 Y$$

$$I = 100; \quad AD = C + I = 160 + 0.9 Y$$

at equilibrium

$$Y = AD; \quad Y = 160 + 0.9 Y$$

$$0.1 Y = 160; \quad Y = 1600$$

101. From the following data about an economy, calculate its equilibrium level of income: [AI 2014 C]

(i) Autonomous Consumption	= 400
(ii) Marginal Propensity to Consume	= 0.5
(iii) Investment	= 4000

$$\text{Ans. } C = \bar{C} + bY = 400 + 0.5 Y$$

$$I = 4000; \quad AD = C + I = 4400 + 0.5 Y$$

at equilibrium

$$Y = AD; \quad Y = 4400 + 0.5 Y$$

$$0.5 Y = 4400; \quad Y = \frac{4400}{0.5}; \quad Y = 8800$$

102. Calculate the equilibrium level of income in the economy  $C = 500 + (0.9) Y$ , Investment expenditure = 3000 [Delhi 2015 C]

$$\text{Ans. } C = 500 + 0.9 Y$$

$$I = 3000; \quad AD = C + I = 3500 + 0.9 Y$$

at equilibrium

$$Y = AD; \quad Y = 3500 + 0.9 Y$$

$$0.1 Y = 3500; \quad Y = 35000$$

103. Give the meaning of investment multiplier and aggregate supply. [Delhi 2015 (C)]

**Ans.** Aggregate supply is the total amount of money value of goods and services, (which is paid to the factor of production against their factor services) that all the producers are willing to supply in an economy we know that  $AS = Y$  so,  $\Delta AS = \Delta Y$  and,

The ratio of change in national income ( $\Delta Y$ ) due to a change in investment ( $\Delta I$ ) is known as investment multiplier (K).

$$K = \frac{\Delta Y}{\Delta I}$$

104. From the following data, calculate the equilibrium level of national income: [Delhi 2016]

- (i) Autonomous Consumption = 500  
(ii) Marginal Propensity to save = 0.2  
(iii) Investment = 2,000

**Ans.**  $C = \bar{C} + bY = 500 + 0.2 Y$   
 $I = 2000$ ;  $AD = C + I = 2500 + 0.2 Y$   
at equilibrium  
 $Y = AD$ ;  $Y = 2500 + 0.2 Y$   
 $0.8Y = 2500$ ;  $Y = \frac{2500}{0.8}$ ;  **$Y = 3125$**

- 105.** Calculate investment expenditure in the economy from the following data: [Delhi 2016]  
(i) Equilibrium level of income = 10,000  
(ii) Autonomous consumption = 500  
(iii) Marginal propensity to consume = 0.75

**Ans.**  $C = \bar{C} + bY = 500 + 0.75 (10000)$   
 $= 500 + 7500 = 8000$   
 $AD = C + I = 8000 + I$   
at equilibrium  
 $Y = AD$ ;  $10000 = 8000 + I$ ;  **$I = 2000$**

- 106.** From the following data, calculate investment expenditure [AI 2016 (C)]  
(i) Marginal propensity to save = 0.2  
(ii) Equilibrium level of income = 22,500  
(iii) Autonomous consumption = 500

**Ans.**  $C = \bar{C} + bY = 500 + 0.8 (22500)$   
 $= 500 + 18000 = 18500$   
 $AD = C + I = 18500 + I$   
at equilibrium  
 $Y = AD$ ;  $22500 = 18500 + I$ ;  **$I = 4000$**

- 107.** In an economy, investment expenditure is 1,000, autonomous consumption is 500 and marginal propensity to save is 0.2. Calculate its equilibrium level of income. [AI 2016 (C)]

**Ans.**  $I = 1000$ ;  $\bar{C} = 500$   
 $MPS = 0.2$ ;  $C = \bar{C} + bY = 500 + 0.8 Y$   
 $AD = C + I = 500 + 0.8 Y + 1000$   
 $= 1500 + 0.8 Y$   
at equilibrium  
 $Y = AD$ ;  $Y = 1500 + 0.8 Y$   
 $0.2 Y = 1500$ ;  $Y = \frac{1500}{0.2}$ ;  **$Y = 7500$**

- 108.** Calculate consumption expenditure in the economy whose equilibrium level of income is 20,000, autonomous consumption is 500 and marginal propensity to save 0.5. [AI 2016 (C)]

**Ans.**  $Y = 20000$ ;  $\bar{C} = 500$   
 $MPS = 0.5$ ;  $MPC + MPS = 1$   
 $MPC = 0.5$   
 $C = \bar{C} + bY = 500 + 0.5 (20000)$   
 $= 500 + 10000$   
 **$C = 10500$**

- 109.** An economy is in equilibrium. From the following data about an economy, calculate autonomous consumption. [Delhi 2017]  
(i) Income = 5,000  
(ii) Marginal propensity to save = 0.2

- (iii) Investment expenditure = 800

**Ans.**  $AD = C + I = C + 800$   
at equilibrium  
 $Y = AD$ ;  $5000 = C + 800$   
 $C = 4200$ ;  $C = \bar{C} + bY$   
 $4200 = \bar{C} + 0.8 (5000)$   
 **$\bar{C} = 200$**

- 110.** An economy is in equilibrium. From the data about an economy, calculate investment expenditure. [Delhi 2017]  
(i) Income = 10,000  
(ii) Marginal propensity to consume = 0.9  
(iii) Autonomous consumption = 100

**Ans.**  $C = \bar{C} + bY = 100 + 0.9 (10000)$   
 $= 100 + 9000 = 9100$   
 $AD = C + I = 9100 + I$   
at equilibrium  
 $Y = AD$ ;  $10000 = 9100 + I$ ;  **$I = 900$**

- 111.** An economy is in equilibrium. From the following data, calculate autonomous consumption. [Delhi 2017]  
(i) Income = 10,000  
(ii) Marginal propensity to save = 0.2  
(iii) Investment = 1,500

**Ans.**  $AD = C + I = C + 1500$   
at equilibrium  
 $Y = AD$ ;  $10000 = C + 1500$   
 $C = 8500$ ;  $C = \bar{C} + bY$   
 $8500 = \bar{C} + 0.8 (10000)$ ;  **$I = 500$**

- 112.** An economy is in equilibrium. From the following data, calculate the marginal propensity to save: [Delhi 2017]  
(i) Income = 10,000  
(ii) Autonomous consumption = 500  
(iii) Consumption expenditure = 8,000

**Ans.**  $C = \bar{C} + bY$   
 $8000 = 500 + b(10000)$   
 $7500 = b(10000)$ ;  $b = \frac{7500}{10000}$ ;  **$b = 0.75$**

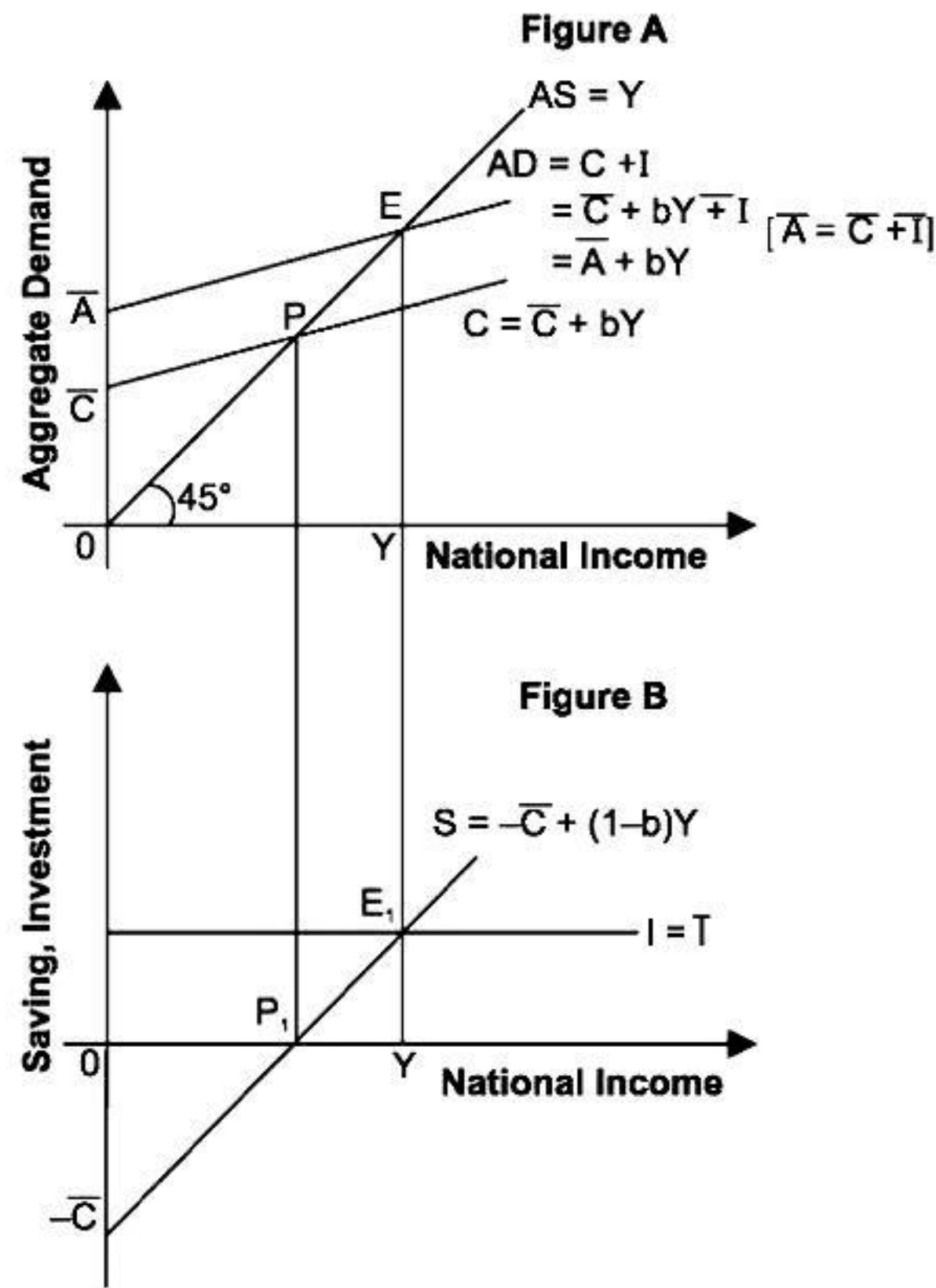
### LA Questions (6 Marks)

#### Questions 113 to 124 Carrying 6 Marks

- 113.** How is 'saving and investment' approach derived from the 'aggregate demand and supply' approach of income determination? Use diagram. [Delhi 2010C]

**Ans.** (i) It refers to that point which has come to be established under the given condition of aggregate demand and aggregate supply, and has tendency to stick to that level under this given condition.  
Condition to get equilibrium level of NY  
 $AD = AS$  or  
Investment = Saving  
How is Investment = Saving?  
Here,  $AD = AS$   
 $C + I = C + S$   
 $I = C + S - C$   
 $I = S$

- (ii) If due to some disturbance, we divert from that position, then the economic forces will work in such a manner so as to drive us back to the original position, i.e., aggregate demand is equal to aggregate supply.  
(iii) Any movement from that point would be unstable. In short, it is a position of rest.



- (iv) Figure B is derived from figure A. In figure A at point P, income is equal to consumption, which is known as to be breakeven point. Corresponding to point P, we derive point P<sub>1</sub> in figure B, where saving is equal to zero. In figure A, the equilibrium level of national income is attained at point E, where aggregate supply = aggregate demand. Corresponding to point E, we derive the point E<sub>1</sub>, where saving = investment.
114. Why must aggregate demand be equal to aggregate supply at the equilibrium level of income and output? Explain with the help of a diagram. **OR** [Delhi 2006]  
 Explain how is equilibrium level of income and employment established through AD and AS? **OR**  
 Explain determination of equilibrium level of income using consumption plus investment approach. Use diagram. **OR** [CBSE 2008, SP 2017]  
 Explain all the changes that will take place in an economy when aggregate demand is not equal to aggregate supply. [AI 2013]

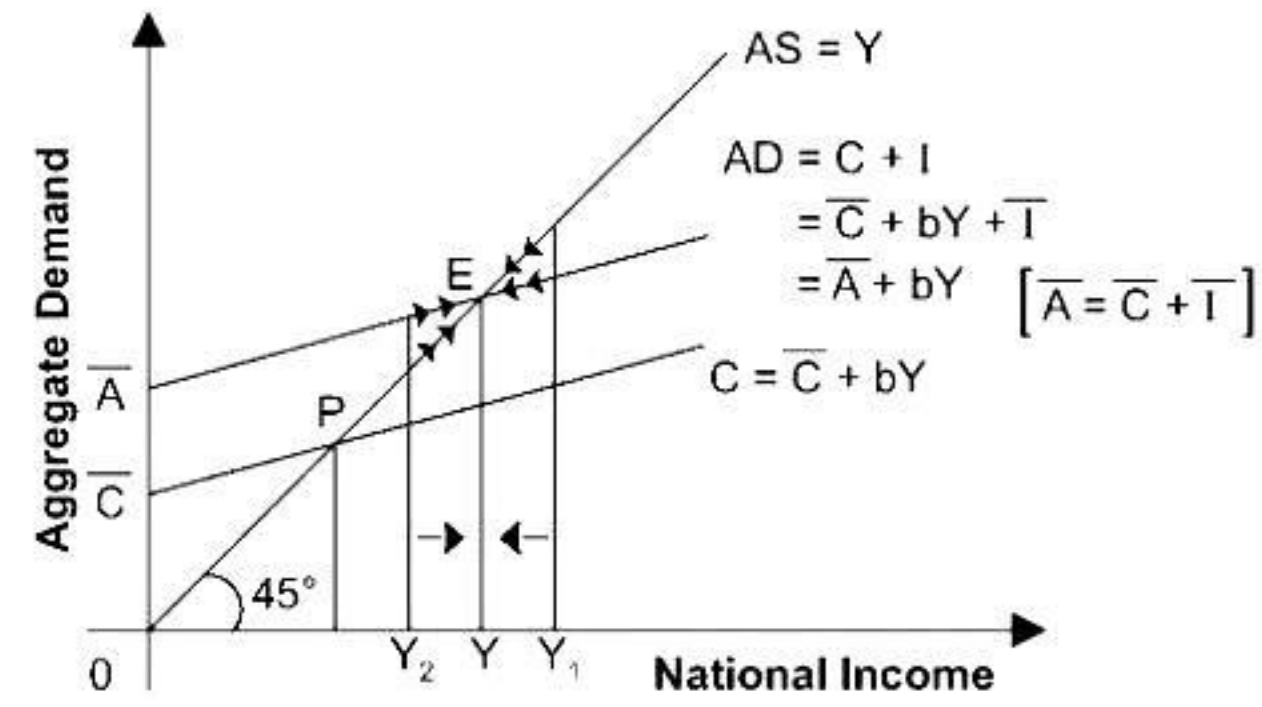
**OR**

Explain national income equilibrium through aggregate demand and aggregate supply. Use diagram. Also explain the changes that take place in an economy when the economy is not in equilibrium. [Delhi 2014]

**OR**

In an economy planned spending is greater than planned output. Explain all the changes that will take place in the economy. [AI 2015C]

- Ans.** (i) It refers to the point that has come to be established under the given condition of aggregate demand and aggregate supply, and has tendency to stick to that level under this given condition where Aggregate demand = Aggregate Supply.  
 (ii) If due to some disturbance, we divert from that position, the economic forces will work in such a manner so as to drive us back to the original position, i.e., aggregate demand is equal to aggregate supply.



- (iii) In the above mentioned figure, at point P, income = consumption, which is known as to be a break-even point. The equilibrium level of national income is attained at point E, where aggregate demand = aggregate supply.  
 (iv) If due to some disturbance we divert from our position, like when  $AD > AS$  [at  $Y_2$ ], then, production will have to be increased to meet the excess demand. Consequently, national income will increase. As we know positive relationship exists between national income and consumption, so consumption will increase, which will thereby increase the aggregate demand till we reach the equilibrium.  
 (v) As against it, when  $AD < AS$  [at  $Y_1$ ], then there would be stockpiling and producers will produce less. National income will fall and as a result consumption will start falling, which will thereby decrease the aggregate demand till we reach the equilibrium.

115. Explain the meaning of equilibrium level of income and output using saving and investment approach. Use a diagram. **OR** [CBSE, 2008, SP 2010]  
 What changes will take place to bring an economy in equilibrium if (i) planned savings are greater than planned investment, and (ii) planned savings are less than planned investment. **OR** [Delhi 2009]  
 Using the 'saving and investment' approach explain how the equilibrium level of national income is determined? Also explain what will happen if the equilibrium condition is not fulfilled. **OR** [SP 2013]  
 When is an economy in equilibrium? Explain with the help of Saving and Investment functions. Also explain the changes that take place in an economy when the economy is not in equilibrium. Use diagram. **OR** [AI 2014]  
 Explain how the economy achieves equilibrium level of income using Savings-Investment (S-I) approach. [CBSE SP 2016]

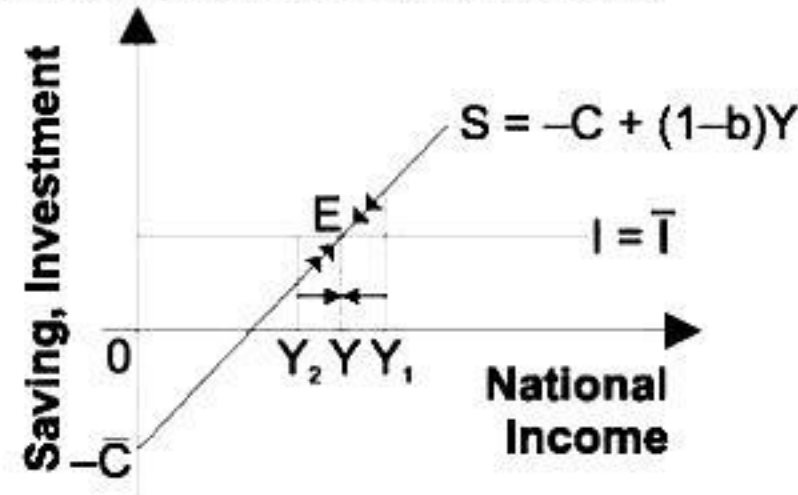
**Ans.** (i) It refers to the point that has come to be established under the given condition of aggregate demand and aggregate supply, and has tendency to stick to that level under this given condition where Aggregate demand(AD)= Aggregate Supply(AS).

$$AD = AS$$

$$\begin{aligned} & \text{Consumption (C) + Investment(I)} \\ & = \text{Consumption (C) + Saving(S)} \\ & \quad \quad \quad I = S \end{aligned}$$

- (ii) If due to some disturbance, we divert from that position, the economic forces will work in such a manner so as to drive us back to the original position, i.e., Saving is equal to Investment.  
 (iii) In the above figure, the equilibrium level of national income is attained at point E, where saving = investment which is derived from a point where  $S = I$ .  
 (iv) If due to some disturbance we divert from our position

like when investment > saving [at  $Y_2$ ], then production will have to be increased to meet the excess demand. Consequently, national income will increase leading to rise in saving until saving becomes equal to investment. It is here that equilibrium level of income is established because what the savers intend to save becomes equal to what the investors intend to invest.



(v) As against it, when saving > investment [at  $Y_1$ ], then there would be stockpiling and producers will produce less. National income will fall and as a result saving will start falling until it becomes equal to investment. It is here the equilibrium level of income is derived.

**116.** In an economy the equilibrium level of income is ₹ 12,000 crore. The ratio of marginal propensity to consume and marginal propensity to save is 3 : 1. Calculate the additional investment needed to reach a new equilibrium level of income of ₹ 20,000 crore. [Delhi AI 2010]

**Ans.** Given:  $Y_e$  (Equilibrium Income) = 12,000 crore

$Y_e'$  (New equilibrium income) = ₹ 20,000

$\Delta Y = 20,000 - 12,000 = ₹ 8,000$  crore

Further, MPC : MPS : 3 : 1 (given)

Let MPS = x,

Then, MPC = 3x

As we know,

MPC + MPS = 1  $3x + x = 1$

$$4x = 1 \quad x = \frac{1}{4}$$

$$\text{MPC} = 3 \times \text{MPS} = 3 \times \frac{1}{4} = \frac{3}{4}$$

$$\text{MPC} = \frac{3}{4}, \text{MPS} = \frac{1}{4}$$

We know that

$$\Delta Y = K \times \Delta I \quad \text{OR} \quad \Delta Y = \frac{1}{1 - \text{MPC}} \times \Delta I$$

$$8,000 = \frac{1}{1 - \frac{3}{4}} \times \Delta I \Rightarrow \Delta 8,000 = \frac{1}{1 - \frac{3}{4}} \times \Delta I$$

$$\Delta I = 8,000 \times \frac{1}{4} = ₹ 2,000$$

**117.** Explain the working of investment multiplier with the help of a numerical example. **OR** [Delhi 2005]

Explain with the help of a numerical example how does increase in investment in an economy affect its level of income? **OR** [Delhi AI 2005]

Explain the dynamic multiplier. **OR**

Explain the income propagation process due to change in investment. **OR**

Explain the process of working of the 'investment multiplier' with the help of a numerical example. [CBSE SP 2014]

**Ans.** The process of investment multiplier is as under:

- It can be illustrated with the help of a simple example. We know that one man's expenditure is another man's income.
- Suppose, the government of a country spends ₹ 100 crore on building roads. National income of the country automatically rises by ₹ 100 crore in Round 1.
- Now suppose MPC is 0.5, people working in the investment industry will spend ₹ 50 crore on new consumption goods.
- The consumer goods industry will have an extra income of ₹ 50 crore. Assume the MPC for the whole society is 0.5, people working in these consumer goods industry would again spend 50% of their additional income of ₹ 50 crore (which works out to be 25 crore) on more consumer goods.
- These ₹ 25 crore will, thus, become the income for others. This will continue till total increase in income becomes K times the increment of investment.
- The process of income generation has been shown in the following table:

Round Number	Increase in Investment ( $\Delta I$ )	Increase in Income ( $\Delta Y$ )	Increase in Consumption ( $\Delta C$ )
1	100	100 = $\Delta I$	50 (100 × 0.5)
2		50 = $b \Delta I$	25 (50 × 0.5)
3		25 = $b^2 \Delta I$	12.5 (25 × 0.5)
4		12.5 = $b^3 \Delta I$	6.25 (12.5 × 0.5)
5		6.25 = $b^4 \Delta I$	3.125 (6.25 × 0.5)
6		3.125 = $b^5 \Delta I$	1.56 (3.125 × 0.5)
7		1.56 = $b^6 \Delta I$	0.78 (1.56 × 0.5)
—	—	—	—
—	—	—	—
Total increase in Income = ₹ 200 crore			

Change in income ( $\Delta Y$ ) =  $\Delta I + b \Delta I + b_2 \Delta I + b_3 \Delta I + b_4 \Delta I + \dots$   
 $\Delta Y = \Delta I [1 + b + b_2 + b_3 + b_4 + \dots]$   
 The term in square bracket is of the form of the sum of an infinite geometric progression series and can be written as,

$$1 + b + b_2 + b_3 + b_4 + \dots = \frac{1}{1 - b[\text{MPC}]} = \frac{1}{1 - 0.5} = 2$$

On the assumption that MPC for the community as a whole is 0.5, the initial investment of ₹ 100 crore would

generate an additional income of ₹ 200 crore. The size of investment multiplier here is 2.

118. Consumption function:  $C = 200 + 0.9Y$  (where  $C =$  consumption expenditure and  $Y =$  National Income), Investment expenditure:  $I = 300$ . Calculate: [AI 2009]

- (i) Equilibrium level of national Income.  
(ii) Savings at equilibrium level of national Income.

Ans.  $C = 200 + 0.9Y$ ;  $I = 300$

(i)  $AD = C + I = 200 + 0.9Y + 300$   
 $= 500 + 0.9Y$

To be in equilibrium

$Y = AD$ ;  $Y = 500 + 0.9Y$

$0.1Y = 500$ ;  $b = \frac{500}{0.1}$ ;  $Y = 5000$

(ii) Saving

$Y = C + S$

$5000 = 200 + 0.9(5000) + S$

$5000 = 4700 + S$ ;  $S = 300$

119.  $C = 100 + 0.4y$  is the Consumption Function of an economy where  $C$  is Consumption. Expenditure and  $y$  is National Income. Investment expenditure is 1100. Calculate. [Delhi 2013]

- (i) Equilibrium level of National Income.  
(ii) Consumption expenditure at equilibrium level of national Income.

Ans.  $C = 100 + 0.4Y$ ;  $I = 1100$

(i)  $AD = C + I = 100 + 0.4Y + 1100$   
 $= 1200 + 0.4Y$

To be in equilibrium,

$Y = AD$ ;  $Y = 1200 + 0.4Y$

$0.6Y = 1200$ ;  $Y = \frac{1200}{0.6}$   
 $Y = 2000$

(ii) Consumption

$C = 100 + 0.4(2000) = 100 + 800 = 900$

120. In an economy,  $S = -100 + 0.6Y$  is the saving function where  $S$  is saving and  $y$  is National Income.  $I$  investment expenditure is 1100, calculate: [Delhi 2013]

- (i) Equilibrium level of National Income.  
(ii) Consumption expenditure at equilibrium level of National Income.

Ans.  $S = -100 + 0.6Y$

$I = 1100$

(i) At equilibrium

$S = I$

$-100 + 0.6Y = 1100$ ;  $0.6Y = 2000$

(ii)  $Y = C + S$

$2000 = C + (-100 + 0.6Y)$

$2000 = \bar{C} = 100 + 0.6(2000)$

$2000 = \bar{C} - 100 + 1200$

$\bar{C} = 900$

121. Form the data given below about an economy, calculate (a) investment expenditure and (b) consumption expenditure [AI 2013]

- (i) Equilibrium level of income 5,000  
(ii) Autonomous consumption 500  
(iii) marginal propensity to consume 0.4

Ans. (a)  $AD = C + I$

at equilibrium,

$Y = AD = 5000$

$5000 = 2500 + I$ ;  $I = 2500$

(b)  $C = \bar{C} + bY = 500 + 0.5(5000)$

$C = 2500$

122. Assuming that increase in investment is ₹ 1000 crore and marginal propensity to consume is 0.9, explain the working of multiplier. [Delhi 2017]

Ans. The process of investment multiplier is as under:

- (i) It can be illustrated with the help of a simple example. We know that one man's expenditure is another man's income.  
(ii) Suppose, the government of a country spends ₹ 1000 crore on building roads. National income of the country automatically rises by ₹ 1000 crore in Round 1.  
(iii) Now suppose MPC is 0.9, people working in the investment industry will spend ₹ 900 crore on new consumption goods.  
(iv) The consumer goods industry will have an extra income of ₹ 900 crore. Assume the MPC for the whole society is 0.9, people working in these consumer goods industry would again spend 90% of their additional income of ₹ 900 crore (which works out to be 810 crore) on more consumer goods.  
(v) These ₹ 810 crore will, thus, become the income for others. This will continue till total increase in income becomes  $K$  times the increment of investment.  
(vi) The process of income generation has been shown in the following table:

Round Number	Increase in Investment ( $\Delta I$ )	Increase in Income ( $\Delta Y$ )	Increase in Consumption ( $\Delta(C)$ )
1	100	$1000 = \Delta I$	900 ( $1000 \times 0.9$ )
2		$900 = b \Delta I$	810 ( $900 \times 0.9$ )
3		$810 = b^2 \Delta I$	729 ( $810 \times 0.9$ )
4		$729 = b^3 \Delta I$	656.1 ( $729 \times 0.9$ )
—	—	—	—
—	—	—	—
—	—	—	—
Total increase in Income = ₹ 10000 crore			

Change in income ( $\Delta Y$ ) =  $\Delta I + b\Delta I + b^2\Delta I + b^3\Delta I + b^4\Delta I + \dots$

$\Delta Y = \Delta I [1 + b + b^2 + b^3 + b^4 + \dots]$

The term in square bracket is of the form of the sum of an infinite geometric progression series and can be written as,

$1 + b + b^2 + b^3 + b^4 + \dots =$

On the assumption that MPC for the community as a whole is 0.9, the initial investment of ₹ 1000 crore would generate an additional income of ₹ 10000 crore. The size of investment multiplier here is 10.

123. Assuming that increase in investment is ₹ 800 crore and marginal propensity to consume is 0.8, explain the working of multiplier. [Delhi 2017]

Ans. The process of investment multiplier is as under:

- (i) It can be illustrated with the help of a simple example. We know that one man's expenditure is another man's income.
- (ii) Suppose, the government of a country spends ₹ 800 crore on building roads. National income of the country automatically rises by ₹ 800 crore in Round 1.
- (iii) Now suppose MPC is 0.8, people working in the

investment industry will spend ₹ 640 crore on new consumption goods.

- (iv) The consumer goods industry will have an extra income of ₹ 640 crore. Assume the MPC for the whole society is 0.8, people working in these consumer goods industry would again spend 80% of their additional income of ₹ 640 crore (which works out to be 512 crore) on more consumer goods.
- (v) These ₹ 512 crore will, thus, become the income for others. This will continue till total increase in income becomes K times the increment of investment.
- (vi) The process of income generation has been shown in the following table:

Round Number	Increase in Investment ( $\Delta I$ )	Increase in Income ( $\Delta Y$ )	Increase in Consumption $\Delta(C)$
1	800	800 = $\Delta I$	640 (800 × 0.8)
2		640 = $b \Delta I$	412 (640 × 0.8)
3		512 = $b^2 \Delta I$	409.6 (512 × 0.8)
4		409.6 = $b^3 \Delta I$	327.68 (409.6 × 0.8)
—	—	—	—
—	—	—	—
—	—	—	—
Total increase in Income = ₹ 2250 crore			

Change in income ( $\Delta Y$ ) =  $\Delta I + b \Delta I + b^2 \Delta I + b^3 \Delta I + b^4 \Delta I + \dots$

$$\Delta Y = \Delta I [1 + b + b^2 + b^3 + b^4 + \dots]$$

The term in square bracket is of the form of the sum of an infinite geometric progression series and can be written as,

$$1 + b + b^2 + b^3 + b^4 + \dots = \frac{1}{1 - b[\text{MPC}]} = \frac{1}{1 - 0.8} = 5$$

On the assumption that MPC for the community as a whole is 0.8, the initial investment of ₹ 800 crore would generate an additional income of ₹ 4000 crore. The size of investment multiplier here is 5.

124. Assuming that 'increase' in investment is ₹ 900 crore and marginal propensity to consume is 0.6, explain the working of multiplier. [Delhi 2017]

Ans. The process of investment multiplier is as under:

- (i) It can be illustrated with the help of a simple example.

We know that one man's expenditure is another man's income.

- (ii) Suppose, the government of a country spends ₹ 900 crore on building roads. National income of the country automatically rises by ₹ 900 crore in Round 1.
- (iii) Now suppose MPC is 0.6, people working in the investment industry will spend ₹ 540 crore on new consumption goods.
- (iv) The consumer goods industry will have an extra income of ₹ 540 crore. Assume the MPC for the whole society is 0.6, people working in these consumer goods industry would again spend 60% of their additional income of ₹ 540 crore (which works out to be 324 crore) on more consumer goods.
- (v) These ₹ 324 crore will, thus, become the income for others. This will continue till total increase in income becomes K times the increment of investment.
- (vi) The process of income generation has been shown in the following table:

Round Number	Increase in Investment ( $\Delta I$ )	Increase in Income ( $\Delta Y$ )	Increase in Consumption $\Delta(C)$
1	900	900 = $\Delta I$	540 (900 × 0.6)
2		540 = $b \Delta I$	324 (540 × 0.6)
3		324 = $b^2 \Delta I$	194.4 (324 × 0.6)
4		194.4 = $b^3 \Delta I$	116.64 (194.4 × 0.6)
—	—	—	—
—	—	—	—
—	—	—	—
Total increase in Income = ₹ 10000 crore			

Change in income ( $\Delta Y$ ) =  $\Delta I + b \Delta I + b^2 \Delta I + b^3 \Delta I + b^4 \Delta I + \dots$

$$\Delta Y = \Delta I [1 + b + b^2 + b^3 + b^4 + \dots]$$

The term in square bracket is of the form of the sum of an infinite geometric progression series and can be written as,

$$1 + b + b^2 + b^3 + b^4 + \dots$$

$$= \frac{1}{1 - b[\text{MPC}]} = \frac{1}{1 - 0.6} = 2.5$$

On the assumption that MPC for the community as a whole is 0.6, the initial investment of ₹ 900 crore would generate an additional income of ₹ 2250 crore. The size of investment multiplier here is 2.5.

## NEW PATTERN QUESTIONS WITH ANSWERS

### I. Chose the Correct alternative

1. According to classical economists, there always exists \_\_\_\_\_ equilibrium in the economy.  
(a) Full employment (b) Underemployment  
(c) Over full employment (d) None of these  
**Ans.** (a) Full employment
2. Which is the equilibrium condition of circular flow in the four sector model?  
(a)  $C + I = AS$  (b)  $C + I + G = AS$   
(c)  $C + I + G + (X-M) = AS$  (d) None of these  
**Ans.** (c)  $C + I + G + (X-M) = AS$
3. For a four sector or open economy the condition for equilibrium is:  
(a) Savings + taxes + Imports = Investment + govt. expenditure + exports  
(b) Total Leakages = Total Injections  
(c) Aggregate output = Aggregate Expenditure  
(d) All of these  
**Ans.** (d) All of these
4. Suppose in a hypothetical economy, the income rises from ₹ 5,000 crores to ₹ 6,000 crores. As a result, the consumption expenditure rises from ₹ 4,000 crores to ₹ 4,600 crores. Marginal propensity to consume in such a case would be \_\_\_\_\_  
(a) 0.8 (b) 0.4  
(c) 0.2 (d) 0.6  
**Ans.** (d) 0.6
5. The value of multiplier is:  
(a)  $1/MPC$  (b)  $1/MPS$   
(c)  $1/1-MPS$  (d)  $1/MPC-1$   
**Ans.** (b)  $1/MPS$
6. If  $MPC = 1$ , the value of the multiplier is:  
(a) 0 (b) 1  
(c) Between 0 and 1 (d) Infinity  
**Ans.** (d) Infinity
7. If the marginal propensity to consume is greater than the marginal propensity to save, the value of the multiplier will be  
(a) greater than 2 (b) less than 2  
(c) equal to 2 (d) equal to 5  
**Ans.** (a) greater than 2
8. If  $MPC = 0.5$ , then Multiplier (K) will be:  
(a)  $1/4$  (b) 0  
(c) 1 (d) 2  
**Ans.** (d) 2
9. Which one of the following is the determining factor of Equilibrium Income is the Keynesian Viewpoint?  
(a) Aggregate Demand (b) Aggregate Supply  
(c) Both (a) and (b) (d) None of these  
**Ans.** (c) Both (a) and (b)
10. In Keynesian viewpoint, the equilibrium level of income and employment in the economy will be established where:  
(a)  $AD > AS$  (b)  $AS > AD$   
(c)  $AD = AS$  (d) None of these  
**Ans.** (c)  $AD = AS$
11. According to the saving-investment viewpoint, income equilibrium will be determined at a point where:  
(a)  $S > I$  (b)  $I > S$   
(c)  $S = I$  (d) None of these  
**Ans.** (c)  $S = I$
12. An increase in aggregate demand of equilibrium level of

income and employment causes an increase in:

- (a) Employment (b) Production  
(c) Income (d) All of these

**Ans.** (d) All of these

13. Keynesian multiplier establishes a relationship between:

- (a) Investment and Income  
(b) Income and Consumption  
(c) Saving and Investment  
(d) None of the above

**Ans.** (a) Investment and Income

14. Multiplier can be expressed as:

- (a)  $K = \Delta S/\Delta I$  (b)  $K = \Delta Y/\Delta I$   
(c)  $K = I - S$  (d) None of these

**Ans.** (b)  $K = \Delta Y/\Delta I$

15. The value of Keynesian Investment Multiplier depends on:

- (a) Income Level  
(b) Marginal Productivity of Capital  
(c) Marginal Propensity to Consume  
(d) Investment Level

**Ans.** (c) Marginal Propensity to Consume

16. Which factor affects Keynesian Multiplier?

- (a) Marginal Propensity to Save  
(b) Marginal Propensity to Consume  
(c) Both (a) and (b)  
(d) None of the above

**Ans.** (c) Both (a) and (b)

17. Which of the following is correct?

- (a) MPC and multiplier have a direct relationship  
(b) MPS and multiplier have an inverse relationship  
(c) Both (a) and (b)  
(d) None of the above

**Ans.** (c) Both (a) and (b)

18. If  $MPC = 0.5$  and initial investment is ₹ 100 crores, the income generation in the economy will be :

- (a) ₹ 5 crores (b) ₹ 100 crores  
(c) ₹ 200 crores (d) ₹ 500 crores

**Ans.** (c) ₹ 200 crores

19. Income and employment are determined by:

- (a) Total demand  
(b) Total supply  
(c) Total demand and total supply both  
(d) By market demand

**Ans.** (c) Total demand and total supply both

### II. Fill in the blanks with Correct Answer.

1. The multiplier is the ratio between the change in income and change in \_\_\_\_\_

**Ans.** investment

2. There is a/an \_\_\_\_\_ relation between multiplier and MPC.

**Ans.** direct

3. Multiplier can also \_\_\_\_\_ in opposite direction.

**Ans.** Work

### III. State whether the following statements are true or false.

1. There is an indirect relationship between multiplier and MPC.

**Ans.** False

2. With the increase in investment, the multiplier increases income many times more. It is called backward action of the multiplier.

**Ans.** False

3. The value of K is in between 1 and  $\infty$ .

**Ans.** True

4. When MPC is zero multiplier is 1.

**Ans.** True

5. Consumption by one person becomes the income of the other.

**Ans.** True

#### IV. Case Study Based Questions

1. West Bengal Finance Minister Amit Mitra has written to his counterpart at the Centre, Nirmala Sitharaman, urging her to take measures to increase demand in the economy as the supply-side policies have "failed" to boost the manufacturing sector. Gross fixed capital formation, which was ₹ 12.3 lakh crore in the first quarter of 2019-20, fell to ₹ 10.2 lakh crore in the corresponding period of the current fiscal, - "a fall of an investment by ₹ 2.1 lakh crore, despite your numerous packages and corporate tax cuts", he said in the four-page letter. The gross domestic product (GDP) had contracted by 24.4 per cent in the corresponding period last year, according to data released by the National Statistical Office.

(i) If MPC is 0.8, what will be the change in consumption if income increases by 300?

- (a) 200 (b) 240  
(c) 250 (d) 210

**Ans.** (b) 240

(ii) With an increase in national income by ₹ 5,000 crores, savings increased by ₹ 1,900 crores. The value of multiplier will be:

- (a) 2.6 times (b) 2.5 times  
(c) 2.8 times (d) 2.4 times

**Ans.** (a) 2.6 times

(iii) In an economy the marginal propensity to consume is 0.75. If investment increases by ₹ 3,000 crores, what will be the total increase in income?

- (a) ₹10,000 crores (b) ₹ 12,000 crores  
(c) ₹ 15,000 crores (d) ₹ 16,000 crores

**Ans.** (b) ₹ 12,000 crores

(iv) If saving function is given as:  $S = -60 + 0.6(Y)$ , then MPC is :

- (a) 0.8 (b) 0.2  
(c) 0.4 (d) 0.6

**Ans.** (c) 0.4

2. Official data tells us that wholesale price index (WPI)-linked inflation went double-digit at 10.5% year-on-year in April 2021 (from 7.4 per cent in March), for the first time since 2010. The CPI inflation, moderated to 4.3 per cent (from 5.5 per cent in March) – led by a high base of the previous year (it had spiked to 7.2 per cent in April 2020). But last year's base may not reflect accurate trends, as data collection was disrupted in April and May 2020. A month-on-month analysis may put the picture in better perspective. The sharp rise in commodity prices across the world is a major reason behind the inflation spike in India. This is increasing the import cost for some of the crucial consumables, pushing inflation higher. Brent crude prices crossed \$65 per barrel in May 2021, more than double of what it was a year ago. Price of vegetable oils, a major import item, shot up 57% to reach a decadal high in April 2021. Metals prices are near the highest in 10 years and international freight costs are escalating. "The trend of WPI rising for inputs is showing up in manufacturing costs including in chemicals, paper, and textile sectors," said Dharmakirti Joshi, Chief Economist at Crisil.

(i) At equilibrium level:

- (a) Consumption = Saving  
(b) Saving = Investment  
(c)  $AD = AS$   
(d) Both (b) and (c)

**Ans.** (d) Both (b) and (c)

(ii) Multiplier is \_\_\_\_\_ related to MPS.

- (a) Inversely (b) Directly  
(c) Absolutely (d) Rarely

**Ans.** (a) Inversely

(iii) When planned savings are less than planned investments, what will be the effect on inventories?

- (a) Fall (b) Rise  
(c) Stable (d) Either (a) or (b)

**Ans.** (a) Fall

(iv) The total expenditure incurred by all the households of the country on their personal consumption is known as:

- (a) Private investment demand  
(b) Private consumption demand  
(c) Household consumption demand  
(d) Both (a) and (b)

**Ans.** (d) Both (a) and (b)

## ASSIGNMENT

Time: 1 hour

MM: 30

1. The level at which the economy is in equilibrium is called (1)  
(a) Excess demand (b) Deficient demand  
(c) Effective demand (d) None of these
2. The ratio of change in national income due to change in investment is known as (1)  
(a) Income multiplier (b) Saving multiplier  
(c) Investment (d) None of these
3. Equilibrium level of income is found when (1)  
(a)  $AD = AS$  (b)  $S = I$   
(c) both (a) and (b) (d) None of these
4. If MPC and MPS are equal, the value of the multiplier will be \_\_\_\_\_. (1)
5. If investment multiplier is 1, the value of marginal propensity to consume will be \_\_\_\_\_. (1)
6. Aggregate demand is always equal to aggregate supply. (True/False) (1)
7. Value of multiplier cannot be less than 1. (True/False) (1)
8.  $K = 1/(1-MPS)$  (True/False) (1)
9. If planned savings are greater than planned investments, what will be its effect on inventories? (1)
10. What is the relationship between marginal propensity to save and multiplier? (1)
11. In an economy, an increase in investment leads to increase in national income which is four times more than the increase in investment, Calculate marginal propensity to consume. (3)
12. If an additional investment of ₹ 1,000 crore increases the income by ₹ 1,000 crore in the first round of the multiplier process, by ₹ 900 crore in the second round, by ₹ 810 crore in the third round and so on determine the total increase in income. (3)
13. Find national income and also consumption at equilibrium level from the following data: (4)  
Autonomous consumption = ₹ 100 crore  
Marginal propensity to consume = 0.08  
Investment = ₹ 50 crore
14. The savings function of an economy is  $S = -200 + 0.25Y$ . The economy is in equilibrium when income is equal to 2,000. Calculate: (4)  
(a) Investment expenditure at equilibrium level of income.  
(b) Autonomous consumption.
12. Explain determination of equilibrium level of income using consumption plus investment approach. Use diagram. (6)

□□□