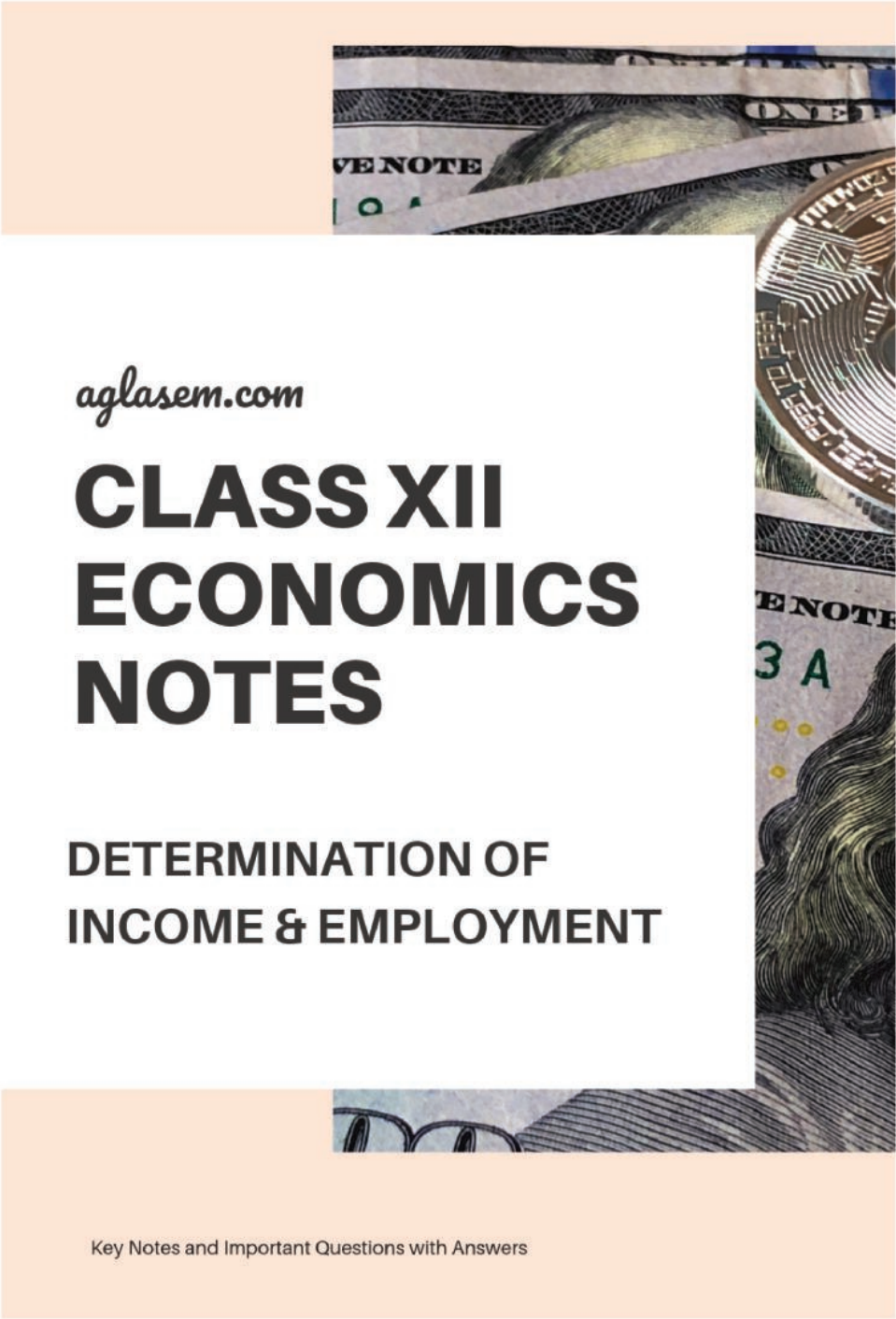


The background of the page features a collage of US currency. On the right side, there is a vertical strip showing a close-up of a US dollar bill, with the words 'ONE NOTE' and '3 A' visible. At the top, there is a horizontal strip showing a US dollar bill with the word 'ONE' visible. At the bottom, there is a horizontal strip showing a US dollar bill with the word 'NOTE' visible. The entire page is framed by a light orange border.

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CLASS XII ECONOMICS NOTES

DETERMINATION OF INCOME & EMPLOYMENT

Key Notes and Important Questions with Answers

UNIT VII

DETERMINATION OF INCOME & EMPLOYMENT

Points to Remember

- ❑ AD refers to total value of all final goods and services that are planned to buy by all the sectors of the economy at a given level of income during a period of time. AD represents the total expenditure on goods and services in an economy during a period of time.
- ❑ **Components of Aggregate demand are :**
 - (i) Household consumption expenditure (C).
 - (ii) Investment expenditure (I)
 - (iii) Govt. consumption expenditure (G).
 - (iv) Net export (X – M).

Thus, $AD = C + I + G + (X - M)$

In two sector economy $AD = C + I$.
- ❑ **Aggregate supply (AS)** refers to total value of all final goods and services that are planned to be produced by all the producing units in the economy during a given period of time. It is also the value of total output available in an economy during a given period of time.

$AS = C + S$
- ❑ Aggregate supply represents the national income of the country.

$AS = Y$ (National Income)
- ❑ **Consumption function** shows functional relationship between income and consumption.

$C = f(Y)$

where C = Consumption
 Y = National Income
 f = Functional relationship

Equation of Consumption Function

$$C = \bar{C} + MPC \cdot Y$$

$\bar{C}$ = Autonomous consumption.

$\bar{C}$ does not change affect by change in income. Consumption expenditure at zero level of income is called autonomous consumption.

□ **Consumption function (propensity to consume)** is of two types :

- (a) Average propensity to consume (APC)
- (b) Marginal propensity to consume (MPC)

□ **Average propensity to consume (APC)** : It refers to the ratio of consumption expenditure to the corresponding level of income.

$$APC = \frac{\text{Consumption (C)}}{\text{Income (Y)}} = \frac{C}{Y}$$

Break even point $C = Y$

Important Points about APC

- (i) **APC is more than 1** : as long as consumption is more than national income. It means before the break-even point, $APC > 1$,
 - (ii) **APC = 1**, at the break-even point, consumption is equal to national income.
 - (iii) **APC is less than 1** : beyond the break-even point. Consumption is less than national income.
 - (iv) **APC falls** with increase in income.
 - (v) **APC can never be zero** : because even at zero level of national income, there is autonomous consumption.
- **Marginal Propensity to Consume (MPC)** : Marginal propensity to consume refers to the ratio of change in consumption expenditure to change in income.

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

Important Points about MPC

- ❑ **Value of MPC varies between 0 and 1** : But if the entire additional income is consumed, then $\Delta C = \Delta Y$, making $MPC = 1$. However, if entire additional income is saved then $\Delta C = 0$, making $MPC = 0$.
- ❑ Saving function refers to the functional relationship between saving and national income.

$$S = f(Y)$$

Equation of Saving function

$$S = \bar{C} + MPS.Y$$

where S = saving

Y = National Income

f = Functional relationship.

- ❑ Saving function (Propensity to Save) is of two types
 - (i) Average Propensity to Save (APS)
 - (ii) Marginal Propensity to Save (MPS)
- ❑ **Average Propensity to Save (APS)** : Average propensity to save refers to the ratio of savings to the corresponding level of income.

$$APS = \frac{\text{Savings}}{\text{Income}} = \frac{S}{Y}$$

- ❑ **Important Point about APS**
 1. **APS can never be 1 or more than 1** : As saving can never be equal to or more than income.
 2. **APS can be zero** : At break even point $C = Y$, hence $S = 0$.
 3. **APS can be negative** : At income levels which are lower than the break-even point, APS can be negative when consumption exceeds income.
 4. APS rises with increases in income.

- ❑ **Marginal Propensity to Save (MPS)** : Marginal propensity to save refers to the ratio of change in saving to change in total income. It can't be negative.

$$MPS = \frac{\text{Change in Savings}}{\text{Change in Income}} = \frac{\Delta S}{\Delta Y}$$

- ❑ **MPS varies between 0 and 1, but**
- (i) if the entire additional income is saved. In such a case, $\Delta S = \Delta Y$, then $MPS = 1$.
 - (ii) If the entire additional income is consumed. In such a case, $\Delta S = 0$, then $MPS = 0$.

- ❑ **Relationship between APC and APS**

The sum of APC and APS is equal to one. It can be proved as under we know :

$$Y = C + S$$

Dividing both sides by Y, we get

$$\frac{Y}{Y} = \frac{C}{Y} + \frac{S}{Y}$$

$$1 = APC + APS \left[\begin{array}{l} APC = \frac{C}{Y} \\ APS = \frac{S}{Y} \end{array} \right]$$

$$APC + APS = 1.$$

because income is either used for consumption or for saving.

- ❑ **Relationship between MPC and MPS**

The sum of MPC and MPS is equal to one. It can be proved as under :

We know

$$\Delta Y = \Delta C + \Delta S$$

Dividing both sides by ΔY , we get

$$\frac{\Delta Y}{\Delta Y} = \frac{\Delta C}{\Delta Y} + \frac{\Delta S}{\Delta Y}$$

$$1 = MPC + MPS \quad \left[\because \frac{\Delta C}{\Delta Y} = MPC, \frac{\Delta S}{\Delta Y} = MPS \right]$$

MPC + MPS = 1 because total increment in income is either used for consumption or for saving.

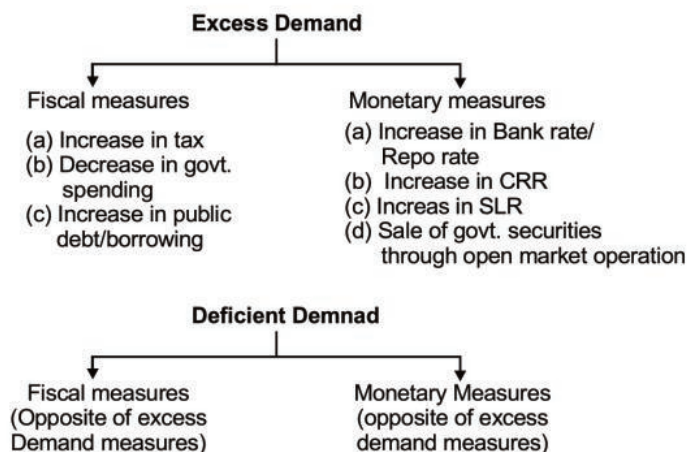
- ❑ Capital Formation / Investment refers to increase the stock of capital goods during a financial year.
- ❑ The investment expenditure is classified under two heads :
(i) Induced investment (ii) Autonomous investment.
- ❑ **Induced Investment** : Induced investment refers to the investment which depends on the profit expectations and is directly influenced by income level (only for reference).
- ❑ **Autonomous Investment** : Autonomous investment refers to the investment which is not affected by changes in the level of income and is not induced solely by profit motive. It is income inelastic.
- ❑ **Ex-Ante Savings** : Ex-ante saving refers to amount of savings which all the household intended to save at different levels of income in the economy at the beginning of period. It is also known as planned savings.
- ❑ **Ex-Ante Investment** : Ex-ante investments refers to amount of investment which all the firms plan to invest at different levels of income in the economy at the beginning of the period. It is also known as planned investment.
- ❑ **Ex-Post Saving** : Ex-post savings refer to the actual or realised savings in an economy during a financial year at end of the period.
- ❑ **Ex-Post Investment** : Ex-post investment refers to the actual or realised investment in an economy during a financial year at the end of the period.

- ❑ Equilibrium level of income is determined only at the point where $AD = AS$ or $S = I$. But it cannot always be at full employment level also. It can be at less than full employment level or over full employment level.
- ❑ **Full employment** is a situation when all those who are able and willing to work at prevailing wage rate, get the opportunity to work.
- ❑ **Voluntary unemployment** is a situation where person is able to work but not willing to work at prevailing wage rate.
- ❑ **Involuntary unemployment** is a situation where worker is able and willing to work at prevailing wage rate but does not get work.
- ❑ **Investment multiplier (K)** is the ratio of change in income (ΔY) due to change in investment ΔI .

$$K = \frac{\Delta Y}{\Delta I} \quad \text{or} \quad K = \frac{1}{1 - MPC} \quad \text{or} \quad K = \frac{1}{MPS}$$

- ❑ Value of Investment multiplier lies b/w 1 to infinity.
- ❑ **Excess demand** refers to a situation when aggregate demand exceeds aggregate supply corresponding to full employment.
- ❑ **Inflationary gap** is the gap by which actual aggregate demand exceeds the level of aggregate demand required to establish full employment. It measures the amount of excess of aggregate demand.
- ❑ **Deficient Demand** : When AD falls short of AS at full employment it is called deficient demand.
- ❑ **Deflationary gap** is the gap by which actual aggregate demand is less than the level of aggregate demand required to establish full employment. It measures the amount of deficiency of aggregate demand.
- ❑ **Ex-ante Consumptions** : Ex-ante refers to the planned consumption at certain level of national income in an economy.
- ❑ **Induced consumptions** : This refers to that level of consumptions which directly depends on the level of income.

Measures to correct excess demand or deficient demand



EXAM ORIENTED QUESTIONS WITH ANSWERS

**VERY SHORT ANSWER QUESTIONS
(1 MARK)**

- Q. 1.** What is 'aggregate supply' in macroeconomics?
- Ans.** Aggregate supply is the value of total quantity of final goods and services planned to be produced in an economy during a period.
- Q. 2.** Define Marginal propensity to consume.
- Ans.** MPC is the ratio of change in consumption expenditure to 'change in income'.
- Q. 3.** Give meaning of full employment.
- Ans.** Full employment is a situation in which all those who are able and willing to work at the prevailing wage rate get the job.

Q. 4. Define Cash Reserve Ratio (CRR).

Ans. CRR can be defined as the ratio (or fraction) of bank deposits that a commercial bank is required to keep with the central bank.

Q. 5. Define Repo Rate.

Ans. Repo rate is the rate of interest charged by central bank on short term loans given to commercial banks.

Q. 6. Value of MPC can never exceed. Why?

Ans. Because increase in consumption can never exceed increase in income.

SHORT ANSWER TYPE QUESTIONS (3-4 MARKS)
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Q. 1. In an economy the MPC is 0.75. Investment expenditure in the economy increase by Rs. 75 Crore. Calculate total increase in national income.

Ans. $K = \frac{1}{1 - MPC} = \frac{1}{1 - 0.75}$

$$K = 4$$

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

$$4 = \frac{\Delta Y}{75}$$

$$\Delta Y = 4 \times 75 = 300 \text{ Crore.}$$

Q. 2. An economy is in equilibrium. Its consumption function is $C = 300 + 0.8Y$ and investment is Rs. 700 find national income.

Ans. $C = 300 + 0.8Y$

$$Y = C + I$$

$$Y = 300 + 0.8Y + 700$$

$$0.2Y = 1000$$

$$Y = 5000$$

$$\text{National Income} = \text{Rs. } 5000$$

Q. 3. Giving reasons' state whether the following statements are true or false.

1. When MPC is zero, the value of investment multiplier will also be zero.
2. Value of APS can never be less than zero.
3. When $MPC > MPS$, the value of investment multiplier will be greater than 5.
4. The value of MPS can never be negative.
5. When investment multiplier is 1, then value of MPC is zero.
6. The value of APS can never be greater than 1.

Ans. 1. False because when $MPC = 0$

Value of investment multiplier is one $K = 1/(1 - MPC)$.

2. False because APS is negative when there are dissavings
3. True, if MPC is greater than 0.8 and false if $MPC > 0.5$ but not greater than 0.8. Hence, the statement is false under given terms & conditions.
4. True, since $MPS = \Delta S / \Delta Y$ and with increase in Income Savings can not decrease.
5. True, because $K = 1/1 - MPC = 1/1 - 0 = 1$.
6. True, because savings can't be greater than Income.

Q. 4. Explain the distinction between voluntary and involuntary employment.

Ans. Voluntary unemployment is a situation where person is able to work but not willing to work at prevailing wage rate. Involuntary unemployment is a situation where worker is able and willing to work at prevailing wage rate but does not get work.

Q. 5. Explain the relationship between investment multiplier and MPC?

Ans. $K = 1/(1 - MPC)$, it shows direct relationship between MPC and the value of multiplier. Higher the proportion of increased income spend on consumption, higher will be value of investment multiplier.

Q. 6. Saving curve of an economy makes a negative intercept of Rs. 30 Crores and 20% of the increased income is saved. Give saving and consumption function.

Ans. $\bar{C} = \text{Rs. 30 Crore}$

$$\text{MPS} = 0.2$$

$$S = -\bar{C} + (1 - b)Y$$

$$= -30 + 0.2Y$$

$$\text{MPC} = 1 - 0.2 = 0.8$$

$$\text{Consumption } C = \bar{C} + bY$$

$$\text{Function } C = 30 + 0.8Y$$

**LONG ANSWER TYPE QUESTION
(6 MARKS)**

Q. 1. Explain the role of the following in correcting deficient demand in an economy.

1. Open Market Operation
2. Bank Rate

Ans.

1. Open market operation refer to the sale and purchase of securities by the Central Bank. In case of deficient demand when AD falling short of AS at full employment, the Central Bank buys securities in the open market and makes payment to the sellers. The money flow out of the Central Bank and reaches the Commercial Bank as deposits. This raises the lending capacity of the banks, people can borrow more. This will raise AD.
2. Incase of deficient demand Central Bank decrease the bank rate which the Central Bank charges on the loan given to commercial bank. This forces the Commercial Banks to reduce lending rate. Since borrowing become cheaper and people borrow more. This will raise AD.

Q. 2. Explain the role of the following in correcting 'Excess Demand in an Economy'.

1. Bank Rate
2. Open Market Operation

Ans.

1. To correct excess demand Central Bank can rise the bank rate. This forces Commercial Bank to increase lending rates. This reduces demand for borrowing by the public for investment and consumption. Aggregate demand falls.
2. When there is excess demand. Central Bank sells securities. This leads to flow of money out of the Commercial Banks to the Central Bank. This reduces deposits with the banks leading to decline in their lending capacity. Borrowing decline. AD declines.

Q. 3. Explain the role of following in correcting the deflationary gap in an economy.

1. Govt. Expenditure
2. Cash Reserve Ratio

Ans.

1. In a situation of deflationary gap or deficient demand the govt. should raise its expenditure i.e., there will be more economic activities in the economy like, building of roads, bridges, canal etc. This will raise the level of employment. It will in turn increase the income and the purchasing power of community. Thus aggregate demand will rise.
2. During deficient demand, Central Bank reduces the CRR. The result of reducing CRR will be seen in the surplus cash reserves with the banks which can be offered for credit. This will have expansionary effect on the credit position of the banks leading to increase in their lending capacity. As a result borrowing will increase and AD will rise.

Q. 4. Explain the role of margin requirements for correcting the deflationary gap.

Ans. Deflationary gap refers to a situation when at full employment level of income AD falls short of AS. It is also called deficient demand.

Margin requirements refers to the margin on the security provided by the borrower. In case of deflationary gap, Central Bank lowers the margin. As a result the borrowing capacity of the borrowers increase. This will raise AD.

Q. 5. In an economy 75% of the increase in income is spent on consumption. Investment increased by Rs. 1000 Crore. Calculate.

1. Total increase in income
2. Total increase in consumption expected.

Ans. $MPC = 75\% = 75/100 = 3/4$.

$$MPC = 1 - 3/4 = 1/4 \quad K = 4$$

$$\begin{aligned} 1. \quad \Delta Y &= \Delta I \times K \\ \Delta Y &= 1000 \times 4 \\ &= 4000 \text{ Crores} \end{aligned}$$

$$\begin{aligned} 2. \quad MPC &= \frac{\Delta C}{\Delta Y} \\ 0.75 &= \frac{\Delta C}{4000} \\ 0.75 \times 4000 &= \Delta C \\ \Delta C &= 3000 \text{ Crores} \end{aligned}$$

Q. 6. In an economy equilibrium level of income of Rs. 1200 Crores. The ratio of MPC to MPS is 3 : 1. Calculate the additional investment needed to reach a new equilibrium level of income of Rs. 2000 crores.

Ans. $MPC = \frac{3}{4} = 0.75$

$$K = 1/(1 - MPC) = 1/(1 - 0.75) = 4$$

$$\Delta Y = 2000 - 1200 = 800 \text{ Crores}$$

$$K = \Delta Y / \Delta I$$

$$4 = 800 / \Delta I$$

$$\Delta I = 200 \text{ Crores}$$

Q. 7. Differentiate between Repo Rate & Bank Rate.

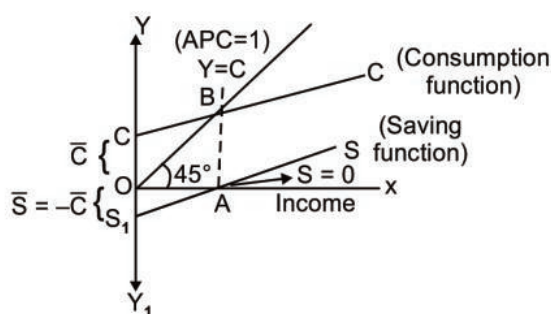
Ans. Repo Rate is concerned with short-term lending by the Central Bank to commercial banks and is governed by the short term interest rate. While Bank rate is applicable to long term lending by the central bank to commercial banks and is governed by the long-term interest rate.

Q. 7. Explain the steps taken in derivation of the saving curve from the given consumption curve. Use diagram.

Ans. Consumption and saving are the two components of income. i.e., $Y = C + S$. At all income levels total of consumption and savings is equal to income. This means consumption and income are complementary to one another. If consumption function is known then saving curve can easily be made.

Steps

1. Draw a line at 45° from the origin.
2. This will intersect consumption curve CC at point B. Consumption (C) = Income (Y) at Point B.
3. Draw a perpendicular from Pt. B on X-axis. Foot of the perpendicular meets x-axis at point A. Savings is zero at Point A.
4. Now take a point S_1 on the negative on y-axis such that OS_1 equal OC, So S_1 is the initial point of saving.
5. In the last, draw a line from S_1 to A, and extend it upto S. Thus SS_1 is the required saving curve.

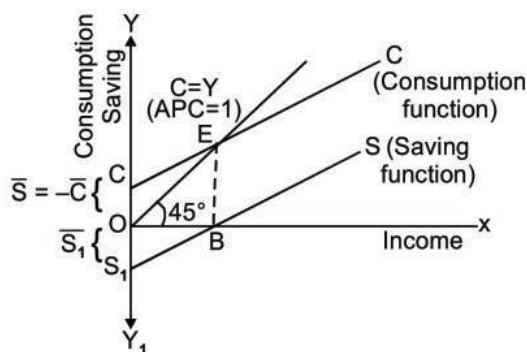


Q. 9. Explain the steps taken in derivation of the consumption curve from the given saving curve. Use diagram.

Ans. For the saving curve S_1S , consumption curve can be drawn.

Steps

1. First of all, draw a line at 45° from the origin.
2. Take a point C on the y-axis positive intercept such that $OS_1 = OC$. Thus C is the initial point of the consumption curve.
3. Point B on the x-axis represents zero saving. Draw a perpendicular from B point which intersects the 45° line at E. At Point E, consumption (C) = Income (Y).
4. In the last, draw a line connecting C and point E. Thus Cc is the required consumption curve.



**VERY SHORT AND SHORT ANSWER TYPE QUESTIONS
(1 MARK AND 3 MARKS)**

1. State whether the following statements are true or false. Give reason for your answer.
 - (a) When investment multiplier is 1, the value of MPC is zero.
 - (b) The value of average propensity to save can never be greater than 1.

2. Giving reasons, state whether the following statements are true or false :

- (i) When marginal propensity to consume is zero, the value of investment multiplier will also be zero.
- (ii) Value of average propensity to save can never be less than zero.

3. Find national income from the following : autonomous consumption = Rs. 100, marginal propensity to consume = 0.80, investment = Rs. 50.

4. Calculate APS and MPS from the following table :

Income (Rs. 000) :	0	100	200	300	400
Consumption (Rs. 000) :	40	120	200	280	360
Expenditure					

5. Complete the table

Income (Rs.)	MPC (Rs.)	Saving (Rs.)	APS (Rs.)
0	—	—90	—
100	0.6	—	—
200	0.6	—	—
300	0.6	—	—

LONG ANSWER TYPE QUESTIONS (6 MARKS)

- Why must aggregate demand be equal to aggregate supply at the equilibrium level of income and output? Explain with the help of a diagram?
- Explain the equilibrium level of income with the help of saving and investment curves. If planned saving exceed planned investment, what changes will bring about the equality between them?
- Explain the working of multiplier with the help of a numerical example.

4. When planned investment is more than planned savings, what will be its impact on income and employment. Explain with the help of diagram.
5. Distinguish between excess demand and deficient demand.
6. In an economy $S = -50 + 0.5Y$ is the saving function (where S - saving and Y = national income) and investment expenditure is 700. Calculate.
 - (i) Equilibrium level of national income
 - (ii) Consumption expenditure at equilibrium level of national income.
7. In an economy consumption function $(C) = 75 + 0.9y$ and investment expenditure of Rs. 400 crore. Calculate :
 - (i) Equilibrium level of income
 - (ii) Saving at equilibrium level of national income.
8. Given below is the consumption function in an economy.
 $C = 100 + 0.5 Y$
 With the help of a numerical example show that in this economy, as income increases APC will decrease.
9. Draw a straight line saving curve from the given consumption curve, explaining the steps of derivation. Show a point on the consumption curve at which APC is equal to 1.
10. Briefly explain the concept of under employment equilibrium with the help of diagram. How increase in investment helps in achieving, full employment equilibrium?
11. What is 'deficient demand' in marcoeconomics? Explain the role of open market operations in correcting it.
12. Explain the step taken in derivation of the saving curve from the given consumption curve use. Use diagram.

13. If MPC in the economy is 0.8. Complete the following table :

<i>Income (Rs.) (Y)</i>	<i>Consumption (Rs.) (C)</i>	<i>Saving (Rs.) (S)</i>	<i>Investment (Rs.) (I)</i>	<i>AD (C+I)</i>	<i>AS (C+S)</i>
0		-60	40		
100			40		
200			40		
300			40		
400			40		
500			40		
600			40		
700			40		

14. In an economy total autonomous spending $\bar{A}(\bar{C} + \bar{I})$ is Rs. 50 and MPS is 0.2. Equilibrium level of income is Rs. 4000 crore, find planned AD and also explain that economy is in equilibrium?
15. At a result of increase in investment by Rs. 100 Crore, national income rises by Rs. 500 crore. Find out marginal propensity to consume and value of investment multiplier.
16. We know that value of investment multiplier directly depends upon MPC. More MPC means more value of investment multiplier. It leads to more generation of national income Why does under developed economy is less even though there is more MPC? Explain.

ANSWER OF 3 MARKS QUESTIONS

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

$\Delta Y = K \cdot \Delta I = 5 \times 50 = \text{Rs. 250 Crore}$

4.

Income (Rs. 1000)	Consumption Expenditure (Rs. 1000)	MPC (DC/DY)	APS (S/Y)
0	40	–	–
100	120	0.8	–0.2
200	200	0.8	0
300	280	0.8	0.067
400	360	0.8	0.1

5.

Income	MPC	Savings	APS
0	–	–90	–
100	0.6	–50	–0.5
200	0.6	–10	–0.05
300	0.6	30	0.1

6 MARKS QUESTIONS

6. Given $S = -50 + .5Y$ $I = > 00$

(i) At equilibrium

$$S = I$$

$$So - 50 + .5Y = > 00$$

$$.5Y = > 50$$

$$Y = \frac{> 50}{.5} = 1500$$

(ii) $Y = C + S$

$$C = Y - S$$

$$= 1500 - > 00 \text{ (as } I = S)$$

$$= 800$$

7. Here $C = 75 + .9Y$ $I = 400$

So $S = 75 + .1Y$

(i) at equilibrium

$I = S$

$-75 + .1Y = 400$

$0.1Y = 475$

$Y = \frac{475}{.1} = 4750$. $Y = 4750$

(ii) at equilibrium

$S = I$

So saving = 400

13.

<i>Income (Y)</i>	<i>Consumption (C)</i>	<i>Saving (S)</i>	<i>Investment (I)</i>	<i>AD (C+I)</i>	<i>AS (C+S)</i>
0	60	-60	40	100	0
100	140	-40	40	180	100
200	220	-20	40	260	200
300	300	0	40	340	300
400	380	20	40	420	400
500	460	40	40	500	500
600	540	60	40	580	600
700	620	80	40	660	700

14. Given $MPS = 0.2$

$MPC = 0.8$ $C = \bar{C} + 0.8Y$

$AD = C + I$ Given

$= \bar{C} + 0.8Y + \bar{I}$ $\bar{C} + \bar{I} = \bar{A} = 50$

$= \bar{A} + 0.8Y$

$AD = 50 + 0.8Y$

$$\begin{aligned}AD &= 50 + 0.8 \times 4000 \\&= 3250\end{aligned}$$

In Equilibrium

$$AS = AD$$

$$Y = AD$$

$$4000 \neq 3250$$

Economy will not be in equilibrium because AD is not equal to AS.

$$15. \quad K = \frac{\Delta Y}{\Delta I} = \frac{500}{100} = 5$$

$$K = 5$$

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

$$5 = \frac{1}{1 - MPC}$$

$$5 - 5 MPC = 1$$

$$5 = 1 + 5 MPC$$

$$5 - 1 = 5 MPC$$

$$4 = 5 MPC$$

$$MPC = \frac{4}{5} = 0.8$$

$$\mathbf{MPC = 0.8.}$$